

✎ Importing necessary Libraries

```

1
2 import sympy as sy
3 import numpy as np
4 import pandas as pd
5 import math
6 import yfinance as yf
7 from datetime import datetime
8 import matplotlib.pyplot as plt
9 import seaborn as sns
10 from pandas_datareader import data
11 from scipy.stats import skew, kurtosis
12 from scipy import stats
13 import statsmodels.api as sm
14 from statsmodels.multivariate.manova import MANOVA
15 from scipy.stats import chi2
16 import statsmodels
17

```


✎ Collection of Financial time series of the identified product set



✎ Collection of Data of Equity Index

```

1 EquityIndex = "Nifty 50 Historical Data.csv"
2 EquityIndex = pd.read_csv(EquityIndex)
3 EquityIndex = EquityIndex.rename(columns={'Price': 'EquityIndex'})
4
5 #print("EquityIndex columns and types before renaming:\n", EquityIndex.dtypes)
6 #EquityIndex['EquityIndex'] = EquityIndex['EquityIndex'].astype(float)
7
8 EquityIndex = pd.DataFrame(EquityIndex)
9 EquityIndex['Date'] = pd.to_datetime(EquityIndex['Date'])
10 EquityIndex.set_index('Date', inplace=True)
11 EquityIndex = EquityIndex.sort_values(by='Date')
12 EquityIndex.describe()
13 #EquityIndex

```

 <ipython-input-312-225d5cb9c42c>:9: UserWarning: Parsing dates in %d-%m-%Y format when dayfirst=False (the default) was specified. Pass `EquityIndex['Date'] = pd.to_datetime(EquityIndex['Date'])`

	EquityIndex	
count	5840.000000	
mean	7458.826353	
std	5484.447540	
min	854.200000	
25%	3182.625000	
50%	5832.425000	
75%	10532.800000	
max	24044.500000	

✎ Data Cleaning

```

1 print("Number of Missing Records - ", EquityIndex.isnull().sum())
2 EquityIndex = EquityIndex.ffill()
3 print("Number of Duplicate Records - ", EquityIndex.index.duplicated().sum())
4 EquityIndex = EquityIndex[~EquityIndex.index.duplicated(keep='first')]
5 EquityIndex.describe()

```

```

↗ Number of Missing Records - EquityIndex    0
dtype: int64
Number of Duplicate Records - 0

```

	EquityIndex
count	5840.000000
mean	7458.826353
std	5484.447540
min	854.200000
25%	3182.625000
50%	5832.425000
75%	10532.800000
max	24044.500000

✓ Collection of Data of FX

```

1 FXUSDINR = "FXUSDINR_RBI.csv"
2 FXUSDINR = pd.read_csv(FXUSDINR)
3 #print("FXUSDINR columns and types before renaming:\n", FXUSDINR.dtypes)
4 FXUSDINR
5
6 FXUSDINR = pd.DataFrame(FXUSDINR)
7 FXUSDINR['Date'] = pd.to_datetime(FXUSDINR['Date'])
8 FXUSDINR.set_index('Date', inplace=True)
9 FXUSDINR = FXUSDINR.sort_values(by='Date')
10 FXUSDINR.describe()

```

```

↗ <ipython-input-314-45d47ce86782>:7: UserWarning: Parsing dates in %d-%m-%Y format when dayfirst=False (the default) was specified. Pass `
FXUSDINR['Date'] = pd.to_datetime(FXUSDINR['Date'])

```

	USD
count	5675.000000
mean	57.884138
std	13.233842
min	39.270000
25%	45.980000
50%	54.289500
75%	68.702900
max	83.586000

✓ Data Cleaning

```

1 print("Number of Missing Records - ", FXUSDINR.isnull().sum())
2 FXUSDINR = FXUSDINR.ffill()
3 print("Number of Duplicate Records - ", FXUSDINR.index.duplicated().sum())
4 FXUSDINR = FXUSDINR[~FXUSDINR.index.duplicated(keep='first')]
5 FXUSDINR.describe()

```

```

↗ Number of Missing Records - USD    0
dtype: int64
Number of Duplicate Records - 0

```


	USD
count	5675.000000
mean	57.884138
std	13.233842
min	39.270000
25%	45.980000
50%	54.289500
75%	68.702900
max	83.586000



✓ Collection of Data of 10 Year GSec Yield

```

1 BondYield = "India 10-Year Bond Yield Historical Data.csv"
2 BondYield = pd.read_csv(BondYield)
3 BondYield = BondYield.rename(columns={'Price': 'BondYield'})
4 #print("BondYield columns and types before renaming:\n", BondYield.dtypes)
5 BondYield.head()
6
7 BondYield = pd.DataFrame(BondYield)
8 BondYield['Date'] = pd.to_datetime(BondYield['Date'])
9 BondYield.set_index('Date', inplace=True)
10 BondYield = BondYield.sort_values(by='Date')
11 BondYield.describe()

```

 <ipython-input-316-a38ce954e3c8>:8: UserWarning: Parsing dates in %d-%m-%Y format when dayfirst=False (the default) was specified. Pass `BondYield['Date'] = pd.to_datetime(BondYield['Date'])`


	BondYield	
count	6106.000000	
mean	7.381702	
std	1.015099	
min	4.962000	
25%	6.729000	
50%	7.425000	
75%	7.981750	
max	10.818000	



▼ Data Cleaning

```

1 print("Number of Missing Records - ", BondYield.isnull().sum())
2 BondYield = BondYield.ffill()
3 print("Number of Duplicate Records - ", BondYield.index.duplicated().sum())
4 BondYield = BondYield[~BondYield.index.duplicated(keep='first')]
5 BondYield.describe()

```

 Number of Missing Records - BondYield 0
dtype: int64
Number of Duplicate Records - 0

	BondYield	
count	6106.000000	
mean	7.381702	
std	1.015099	
min	4.962000	
25%	6.729000	
50%	7.425000	
75%	7.981750	
max	10.818000	

▼ Collection of Data of Gold_Price

```

1 Gold = "WGC_GoldPriceINROunce.csv"
2 Gold = pd.read_csv(Gold)
3 Gold = Gold.rename(columns={'INR': 'Gold_Price'})
4 #print("BondYield columns and types before renaming:\n", Gold.dtypes)
5 Gold.head()
6
7 Gold = pd.DataFrame(Gold)
8 Gold['Date'] = pd.to_datetime(Gold['Date'])
9 Gold.set_index('Date', inplace=True)
10 Gold = Gold.sort_values(by='Date')
11 Gold.describe()

```

```
<ipython-input-318-e968ea84558f>:8: UserWarning: Parsing dates in %d-%m-%Y format when dayfirst=False (the default) was specified. Pass `
Gold['Date'] = pd.to_datetime(Gold['Date'])
```

	Gold_Price	
count	6130.000000	
mean	71643.801646	
std	45868.071056	
min	11936.130000	
25%	27761.727500	
50%	75460.965000	
75%	90159.752500	
max	202072.730000	

▼ Data Cleaning

```
1 print("Number of Missing Records - ", Gold.isnull().sum())
2 Gold = Gold.ffill()
3 print("Number of Duplicate Records - ", Gold.index.duplicated().sum())
4 Gold = Gold[~Gold.index.duplicated(keep='first')]
5 Gold.describe()
```

```
Number of Missing Records - Gold_Price    0
dtype: int64
Number of Duplicate Records - 0
```

	Gold_Price	
count	6130.000000	
mean	71643.801646	
std	45868.071056	
min	11936.130000	
25%	27761.727500	
50%	75460.965000	
75%	90159.752500	
max	202072.730000	

▼ Combined Data

```
1 merged_df = pd.merge(EquityIndex, BondYield, on='Date', how='inner').dropna()
2 merged_df = pd.merge(merged_df, FXUSDINR, on='Date', how='inner').dropna()
3 merged_df = pd.merge(merged_df, Gold, on='Date', how='inner').dropna()
4 merged_df.describe()
```

	EquityIndex	BondYield	USD	Gold_Price	
count	5670.000000	5670.000000	5670.000000	5670.000000	
mean	7461.561164	7.376909	57.894244	71499.336868	
std	5478.265413	0.991810	13.235258	45861.514671	
min	854.200000	4.962000	39.270000	11936.130000	
25%	3196.200000	6.741750	45.982500	27675.222500	
50%	5833.475000	7.421500	54.292900	75379.615000	
75%	10529.587500	7.965000	68.718650	90245.245000	
max	24044.500000	10.818000	83.586000	202072.730000	

▼ Data Cleaning

```
1 print("Number of Missing Records - ", merged_df.isnull().sum())
2 merged_df = merged_df.ffill()
3
4 print("Number of Duplicate Records - ", merged_df.duplicated().sum())
5 merged_df = merged_df.drop_duplicates()
6
7 merged_df.describe()
```

```

Number of Missing Records - EquityIndex 0
BondYield 0
USD 0
Gold_Price 0
dtype: int64
Number of Duplicate Records - 0

```

	EquityIndex	BondYield	USD	Gold_Price
count	5670.000000	5670.000000	5670.000000	5670.000000
mean	7461.561164	7.376909	57.894244	71499.336868
std	5478.265413	0.991810	13.235258	45861.514671
min	854.200000	4.962000	39.270000	11936.130000
25%	3196.200000	6.741750	45.982500	27675.222500
50%	5833.475000	7.421500	54.292900	75379.615000
75%	10529.587500	7.965000	68.718650	90245.245000
max	24044.500000	10.818000	83.586000	202072.730000

Calculating the Returns

```

1 df>Returns = merged_df.pct_change()
2 df>Returns = pd.DataFrame(df>Returns)
3 #df>Returns['Date'] = pd.to_datetime(df>Returns['Date'])
4 #df>Returns.set_index('Date', inplace=True)
5 df>Returns

```

	EquityIndex	BondYield	USD	Gold_Price
Date				
2001-01-01	NaN	NaN	NaN	NaN
2001-01-02	0.013952	0.001389	0.000643	-0.012206
2001-01-03	0.015293	-0.002126	0.000214	-0.014253
2001-01-04	0.012701	-0.010005	0.000857	0.000134
2001-01-05	0.014989	-0.001216	0.000000	0.000909
...
2024-06-24	0.001564	-0.000287	-0.000864	-0.004245
2024-06-25	0.007794	0.001721	-0.001033	-0.001833
2024-06-26	0.006218	0.002005	0.001359	-0.009323
2024-06-27	0.007361	0.000429	-0.000614	0.009677
2024-06-28	-0.001410	0.001143	-0.000434	0.002133

5670 rows × 4 columns

Next steps:

[Generate code with df>Returns](#)
[View recommended plots](#)
[New interactive sheet](#)

Data Cleaning

```

1 print("Number of Missing Records - ", df>Returns.isnull().sum())
2 df>Returns = df>Returns.ffill()
3 print("Number of Duplicate Records - ", df>Returns.index.duplicated().sum())
4 df>Returns = df>Returns[~df>Returns.index.duplicated(keep='first')]
5 df>Returns.describe()

```

```

Number of Missing Records - EquityIndex 1
BondYield 1
USD 1
Gold_Price 1
dtype: int64
Number of Duplicate Records - 0

```

	EquityIndex	BondYield	USD	Gold_Price
count	5669.000000	5669.000000	5669.000000	5669.000000
mean	0.000617	-0.000047	0.000111	0.000538
std	0.013878	0.007731	0.004023	0.010821
min	-0.129805	-0.078040	-0.029617	-0.094828
25%	-0.005665	-0.002999	-0.001576	-0.004751
50%	0.000874	0.000000	0.000000	0.000166
75%	0.007407	0.002890	0.001725	0.006096
max	0.177441	0.130172	0.041019	0.077713

✓ Splitting the Data as per the election period

Bifurcating the data into Pre, Post & during the polling period for each election event.

1 Start coding or [generate](#) with AI.

```

1
2 def ElectionPhaseA(df>Returns, PollingBegin, PollingEnd, Offsetperioddays):
3     #Calculate the Election Phase
4     PollingPhase = df>Returns.loc[PollingBegin:PollingEnd]
5     PollingPhaseBefore = df>Returns.loc[PollingBegin - pd.DateOffset(days=Offsetperioddays):PollingBegin - pd.DateOffset(days=1) ]
6     PollingPhaseAfter = df>Returns.loc[PollingEnd + pd.DateOffset(days=1):PollingEnd + pd.DateOffset(days=Offsetperioddays)]
7     ElectionPhase = pd.concat([PollingPhaseBefore, PollingPhase, PollingPhaseAfter])
8     PollingBeginDate = PollingBegin
9     PollingEndDate = PollingEnd
10    ElectionPhaseAnalysis = pd.DataFrame(ElectionPhase)
11    ElectionPhaseAnalysis['Cumulative_EquityIndex'] = (1 + ElectionPhaseAnalysis['EquityIndex']).cumprod() - 1
12    ElectionPhaseAnalysis['CumulativeBondYield'] = (1 + ElectionPhaseAnalysis['BondYield']).cumprod() - 1
13    ElectionPhaseAnalysis['Cumulative_USD'] = (1 + ElectionPhaseAnalysis['USD']).cumprod() - 1
14    ElectionPhaseAnalysis['Cumulative_Gold_Price'] = (1 + ElectionPhaseAnalysis['Gold_Price']).cumprod() - 1
15
16    # Plot the returns
17    plt.figure(figsize=(14, 7))
18    plt.plot( ElectionPhaseAnalysis['Cumulative_EquityIndex'], label='Equity Index Return')
19    plt.plot( ElectionPhaseAnalysis['CumulativeBondYield'], label='BondYield Return')
20    plt.plot( ElectionPhaseAnalysis['Cumulative_USD'], label='USD Return')
21    plt.plot( ElectionPhaseAnalysis['Cumulative_Gold_Price'], label='Gold_Price Return')
22
23    plt.axvline(pd.to_datetime(PollingBeginDate), color='r', linestyle='--', lw=2, label='Polling Begin Date')
24    plt.axvline(pd.to_datetime(PollingEndDate), color='g', linestyle='--', lw=2, label='Polling End Date')
25
26
27    plt.fill_between(ElectionPhaseAnalysis.index,
28                    ElectionPhaseAnalysis['Cumulative_EquityIndex'].min(),
29                    ElectionPhaseAnalysis['Cumulative_EquityIndex'].max(),
30                    where=(ElectionPhaseAnalysis.index >= pd.to_datetime(PollingBeginDate)) &
31                        (ElectionPhaseAnalysis.index <= pd.to_datetime(PollingEndDate)),
32                    color='gray', alpha=0.3)
33
34
35    plt.xlabel('Date')
36    plt.ylabel('Return')
37    plt.title(f"Cumulative Daily Returns of Product Sets for {NameA} with polling offset of {Offsetperioddays} days")
38    plt.legend()
39    plt.show()
40
41
42    print(ElectionPhase.describe().loc["count"])
43    print(PollingPhaseBefore.describe().loc["count"])
44    print(PollingPhase.describe().loc["count"])
45    print(PollingPhaseAfter.describe().loc["count"])
46
47    print("=====")
48
49
50    return ElectionPhase, PollingPhase, PollingPhaseBefore, PollingPhaseAfter
51
52 # PollingPhaseBefore = df>Returns.loc[PollingBegin - pd.DateOffset(days=Offsetperioddays):PollingBegin - pd.DateOffset(days=1) ]
53 # PollingPhaseAfter = df>Returns.loc[PollingEnd + pd.DateOffset(days=1):PollingEnd + pd.DateOffset(days=Offsetperioddays)]
54
55 # ElectionPhase = pd.concat([PollingPhaseBefore, PollingPhase, PollingPhaseAfter])

```

```
55 # ElectionPhase = pd.concat([PollingPhaseBefore, PollingPhase, PollingPhaseAfter])
56
57 #ElectionPhase
```

```

1 def add_phase_column(df, phase_name):
2     df["Phase"] = phase_name
3     return df
4
5
6 # Calculate various statistics
7
8
9 def statistics(NameA, NameB, NameC, NameD, ElectionPhase, PollingPhaseBefore, PollingPhase, PollingPhaseAfter ):
10    new_stats_df = pd.DataFrame({
11        "Phase": NameA,
12        "Mean": ElectionPhase.describe().loc["mean"],
13        "Standard Deviation": ElectionPhase.std(),
14        "Variance": ElectionPhase.var(),
15        "Skewness": skew(ElectionPhase),
16        "Kurtosis": kurtosis(ElectionPhase),
17    })
18    CovA = pd.DataFrame((f'{NameA} ', ElectionPhase.cov()))
19    CorA = pd.DataFrame((f'{NameA} ', ElectionPhase.corr()))
20    CovA = add_phase_column(pd.DataFrame(ElectionPhase.cov()), NameA)
21    CorA = add_phase_column(pd.DataFrame(ElectionPhase.corr()), NameA)
22    combined_stats_df = new_stats_df
23    combined_CovA = CovA
24    combined_CorA = CorA
25
26
27    new_stats_df = pd.DataFrame({
28        "Phase": NameB,
29        "Mean": PollingPhaseBefore.describe().loc["mean"],
30        "Standard Deviation": PollingPhaseBefore.std(),
31        "Variance": PollingPhaseBefore.var(),
32        "Skewness": skew(PollingPhaseBefore),
33        "Kurtosis": kurtosis(PollingPhaseBefore),
34    })
35    CovA = pd.DataFrame((f'{NameB} ', PollingPhaseBefore.cov()))
36    CorA = pd.DataFrame((f'{NameB} ', PollingPhaseBefore.corr()))
37    CovA = add_phase_column(pd.DataFrame(PollingPhaseBefore.cov()), NameB)
38    CorA = add_phase_column(pd.DataFrame(PollingPhaseBefore.corr()), NameB)
39    combined_stats_df = pd.concat([combined_stats_df, new_stats_df], axis=0)
40    combined_CovA = pd.concat([combined_CovA, CovA], axis=0)
41    combined_CorA = pd.concat([combined_CorA, CorA], axis=0)
42
43
44
45    new_stats_df = pd.DataFrame({
46        "Phase": NameC,
47        "Mean": PollingPhase.describe().loc["mean"],
48        "Standard Deviation": PollingPhase.std(),
49        "Variance": PollingPhase.var(),
50        "Skewness": skew(PollingPhase),
51        "Kurtosis": kurtosis(PollingPhase),
52    })
53    CovA = pd.DataFrame((f'{NameC} ', PollingPhase.cov()))
54    CorA = pd.DataFrame((f'{NameC} ', PollingPhase.corr()))
55    CovA = add_phase_column(pd.DataFrame(PollingPhase.cov()), NameC)
56    CorA = add_phase_column(pd.DataFrame(PollingPhase.corr()), NameC)
57    combined_stats_df = pd.concat([combined_stats_df, new_stats_df], axis=0)
58    combined_CovA = pd.concat([combined_CovA, CovA], axis=0)
59    combined_CorA = pd.concat([combined_CorA, CorA], axis=0)
60
61    new_stats_df = pd.DataFrame({
62        "Phase": NameD,
63        "Mean": PollingPhaseAfter.describe().loc["mean"],
64        "Standard Deviation": PollingPhaseAfter.std(),
65        "Variance": PollingPhaseAfter.var(),
66        "Skewness": skew(PollingPhaseAfter),
67        "Kurtosis": kurtosis(PollingPhaseAfter),
68    })
69    CovA = pd.DataFrame((f'{NameD} ', PollingPhaseAfter.cov()))
70    CorA = pd.DataFrame((f'{NameD} ', PollingPhaseAfter.corr()))
71    CovA = add_phase_column(pd.DataFrame(PollingPhaseAfter.cov()), NameD)
72    CorA = add_phase_column(pd.DataFrame(PollingPhaseAfter.corr()), NameD)
73
74    combined_stats_df = pd.concat([combined_stats_df, new_stats_df], axis=0)
75    combined_CovA = pd.concat([combined_CovA, CovA], axis=0)
76    combined_CorA = pd.concat([combined_CorA, CorA], axis=0)
77
78 # Save the combined statistics to the CSV file
79 combined_stats_df.to_csv(f'Statistics {NameA}_{Offsetperioddays}.csv', index=True)
80 combined_CovA.to_csv(f'Covariance {NameA}_{Offsetperioddays}.csv', index=True)
81 combined_CorA.to_csv(f'Correlation {NameA}_{Offsetperioddays}.csv', index=True)
82 print(f'Statistical Summary of the {NameA} :\n')
83 print(pd.DataFrame(combined_stats_df))
84
85 print(f'Covariance Summary of the {NameA} :\n')
86 print(combined_CovA)

```



```

87
88 df = pd.DataFrame(combined_CovA)
89
90 new_data = {
91     'Matrix': [],
92     'EquityIndex vs BondYield': [],
93     'EquityIndex vs USD': [],
94     'EquityIndex vs Gold Price': [],
95     'BondYield vs USD': [],
96     'BondYield vs Gold Price': [],
97     'USD vs Gold Price': []
98 }
99
100
101 phases = ['Pre-Polling Period ', 'Polling Period ', 'Post-Polling Period ']
102 for phase in phases:
103     phase_df = df[df['Phase'] == phase]
104     new_data['Matrix'].append(phase)
105     new_data['EquityIndex vs BondYield'].append(phase_df.loc[phase_df.index[0], 'BondYield'])
106     new_data['EquityIndex vs USD'].append(phase_df.loc[phase_df.index[0], 'USD'])
107     new_data['EquityIndex vs Gold Price'].append(phase_df.loc[phase_df.index[0], 'Gold_Price'])
108     new_data['BondYield vs USD'].append(phase_df.loc[phase_df.index[1], 'USD'])
109     new_data['BondYield vs Gold Price'].append(phase_df.loc[phase_df.index[1], 'Gold_Price'])
110     new_data['USD vs Gold Price'].append(phase_df.loc[phase_df.index[2], 'Gold_Price'])
111
112 CovMatrix = pd.DataFrame(new_data)
113
114 plt.figure(figsize=(14, 7))
115
116 for column in CovMatrix.columns[1:]:
117     plt.plot(CovMatrix['Matrix'], CovMatrix[column], marker='o', label=column)
118
119 plt.xlabel('Phase')
120 plt.ylabel('Covariance Matrix')
121 plt.title(f"Covariance Result During Different Phases for {NameA} with polling offset of {Offsetperioddays} days")
122
123 plt.legend()
124 plt.grid(True)
125 #print(plt.show())
126
127
128
129 print(f'correlations Summary of the {NameA} :\n')
130 print(combined_CorA)
131
132
133 df = pd.DataFrame(combined_CorA)
134
135 new_data = {
136     'Matrix': [],
137     'EquityIndex vs BondYield': [],
138     'EquityIndex vs USD': [],
139     'EquityIndex vs Gold Price': [],
140     'BondYield vs USD': [],
141     'BondYield vs Gold Price': [],
142     'USD vs Gold Price': []
143 }
144
145 # Fill in the new table
146 phases = ['Pre-Polling Period ', 'Polling Period ', 'Post-Polling Period ']
147 for phase in phases:
148     phase_df = df[df['Phase'] == phase]
149     new_data['Matrix'].append(phase)
150     new_data['EquityIndex vs BondYield'].append(phase_df.loc[phase_df.index[0], 'BondYield'])
151     new_data['EquityIndex vs USD'].append(phase_df.loc[phase_df.index[0], 'USD'])
152     new_data['EquityIndex vs Gold Price'].append(phase_df.loc[phase_df.index[0], 'Gold_Price'])
153     new_data['BondYield vs USD'].append(phase_df.loc[phase_df.index[1], 'USD'])
154     new_data['BondYield vs Gold Price'].append(phase_df.loc[phase_df.index[1], 'Gold_Price'])
155     new_data['USD vs Gold Price'].append(phase_df.loc[phase_df.index[2], 'Gold_Price'])
156
157 # Convert the new data to a dataframe
158 CorrMatrix = pd.DataFrame(new_data)
159 # Plot the correlations
160 plt.figure(figsize=(14, 7))
161
162 # Iterate over each pair of variables and plot their correlations
163 for column in CorrMatrix.columns[1:]:
164     plt.plot(CorrMatrix['Matrix'], CorrMatrix[column], marker='o', label=column)
165
166 plt.xlabel('Phase')
167 plt.ylabel('Correlation')
168 plt.title(f"Correlation Result During Different Phases for {NameA} with polling offset of {Offsetperioddays} days")
169
170 plt.legend()
171 plt.grid(True)
172 plt.show()

```

```

173
174

1 def statistical_levene_test(NameA, NameB, NameC, NameD, ElectionPhase, PollingPhaseBefore, PollingPhase, PollingPhaseAfter):
2     levene_test_EquityIndex = stats.levene(PollingPhase['EquityIndex'], PollingPhaseBefore['EquityIndex'])
3     levene_test_BondYield = stats.levene(PollingPhase['BondYield'], PollingPhaseBefore['BondYield'])
4     levene_test_USD = stats.levene(PollingPhase['USD'], PollingPhaseBefore['USD'])
5     levene_test_Gold = stats.levene(PollingPhase['Gold_Price'], PollingPhaseBefore['Gold_Price'])
6
7     print (f"Levenes Test Result for {NameA} with polling offset of {Offsetperioddays} days with comparision of Pre-Polling vs Polling Perio
8     levene_results = pd.DataFrame({
9         "Variable": ["EquityIndex", "BondYield", "USD", "Gold Price"],
10        "Levene's Test Statistic": [levene_test_EquityIndex.statistic, levene_test_BondYield.statistic, levene_test_USD.statistic, levene_te
11        "p-value": [levene_test_EquityIndex.pvalue, levene_test_BondYield.pvalue, levene_test_USD.pvalue, levene_test_Gold.pvalue]
12    })
13    print(levene_results.to_string(index=False))
14
15    levene_test_EquityIndex = stats.levene(PollingPhaseAfter['EquityIndex'], PollingPhaseBefore['EquityIndex'])
16    levene_test_BondYield = stats.levene(PollingPhaseAfter['BondYield'], PollingPhaseBefore['BondYield'])
17    levene_test_USD = stats.levene(PollingPhaseAfter['USD'], PollingPhaseBefore['USD'])
18    levene_test_Gold = stats.levene(PollingPhaseAfter['Gold_Price'], PollingPhaseBefore['Gold_Price'])
19
20    print (f"Levenes Test Result for {NameA} with polling offset of {Offsetperioddays} days with comparision of Pre-Polling vs Post-Polling
21    levene_results = pd.DataFrame({
22        "Variable": ["EquityIndex", "BondYield", "USD", "Gold Price"],
23        "Levene's Test Statistic": [levene_test_EquityIndex.statistic, levene_test_BondYield.statistic, levene_test_USD.statistic, levene_te
24        "p-value": [levene_test_EquityIndex.pvalue, levene_test_BondYield.pvalue, levene_test_USD.pvalue, levene_test_Gold.pvalue]
25    })
26    print(levene_results.to_string(index=False))

1 def box_m_test(groups):
2     k = len(groups)
3     p = groups[0].shape[0]
4     N = sum(group.shape[0] for group in groups)
5     pooled_cov = sum((group.shape[0] - 1) * group for group in groups) / (N - k)
6     M = (N - k) * np.log(np.linalg.det(pooled_cov))
7     for group in groups:
8         M -= (group.shape[0] - 1) * np.log(np.linalg.det(group))
9     c = ((2 * p**2 + 3 * p - 1) * (sum(1 / (group.shape[0] - 1) for group in groups) - 1 / (N - k))) / (6 * (p + 1) * (k - 1))
10    M *= 1 - c
11    df = p * (p + 1) * (k - 1) / 2
12    p_value = 1 - chi2.cdf(M, df)
13    return M, p_value

1 def statistical_boxm_test(NameA, NameB, NameC, NameD, ElectionPhase, PollingPhaseBefore, PollingPhase, PollingPhaseAfter):
2     array_1 = PollingPhaseBefore.cov().to_numpy()
3     array_2 = PollingPhase.cov().to_numpy()
4     groups = [array_1, array_2]
5     M, p_value = box_m_test(groups)
6     print (f"Boxes M Test Result for {NameA} with polling offset of {Offsetperioddays} days with comparision of Pre-Polling vs Polling Period
7     print(f"Box's M statistic: {M}")
8     print(f"P-value: {p_value}")
9     array_1 = PollingPhaseBefore.cov().to_numpy()
10    array_2 = PollingPhase.cov().to_numpy()
11    groups = [array_1, array_2]
12    M, p_value = box_m_test(groups)
13    print (f"Boxes M Test Result for {NameA} with polling offset of {Offsetperioddays} days with comparision of Pre-Polling vs Post-Polling P
14    print(f"Box's M statistic: {M}")
15    print(f"P-value: {p_value}")
16
17

```

```

1 # Fisher's Z-Test for comparing correlations
2 def fisher_z_test(r1, r2, n1, n2):
3     z1 = np.arctanh(r1)
4     z2 = np.arctanh(r2)
5     se_diff = np.sqrt(1/(n1 - 3) + 1/(n2 - 3))
6     z = (z1 - z2) / se_diff
7     p_value = 2 * (1 - stats.norm.cdf(abs(z)))
8     return z, p_value
9
10 def statistical_fisher_test(NameA, NameB, NameC, NameD, ElectionPhase, PollingPhaseBefore, PollingPhase, PollingPhaseAfter):
11     # Calculate correlations
12     corr1 = PollingPhase.corr()
13     corr2 = PollingPhaseBefore.corr()
14     # Perform Fisher's Z-Test
15     z, p_value = fisher_z_test(corr1, corr2, len(PollingPhase), len(PollingPhaseBefore))
16     print(f"Fisher's Z Test Result for {NameA} with polling offset of {Offsetperioddays} days with comparision of Pre-Polling vs Polling Pe")
17     print("Fisher's Z-Test: Z =", pd.DataFrame(z), "\n", "P-value =", pd.DataFrame(p_value))
18
19     corr1 = PollingPhaseAfter.corr()
20     corr2 = PollingPhaseBefore.corr()
21     # Perform Fisher's Z-Test
22     z, p_value = fisher_z_test(corr1, corr2, len(PollingPhaseAfter), len(PollingPhaseBefore))
23     print(f"Fisher's Z Test Result for {NameA} with polling offset of {Offsetperioddays} days with comparision of Pre-Polling vs Post-Polli")
24     print("Fisher's Z-Test: Z =", pd.DataFrame(z), "\n", "P-value =", pd.DataFrame(p_value))

```

✓ Election Phase 14

```

1 NameA = 'Election Phase 14 '
2 NameB = "Pre-Polling Period "
3 NameC = "Polling Period "
4 NameD = "Post-Polling Period "
5 PollingBigin = pd.to_datetime('2004-04-20')
6 PollingEnd = pd.to_datetime('2004-05-13')

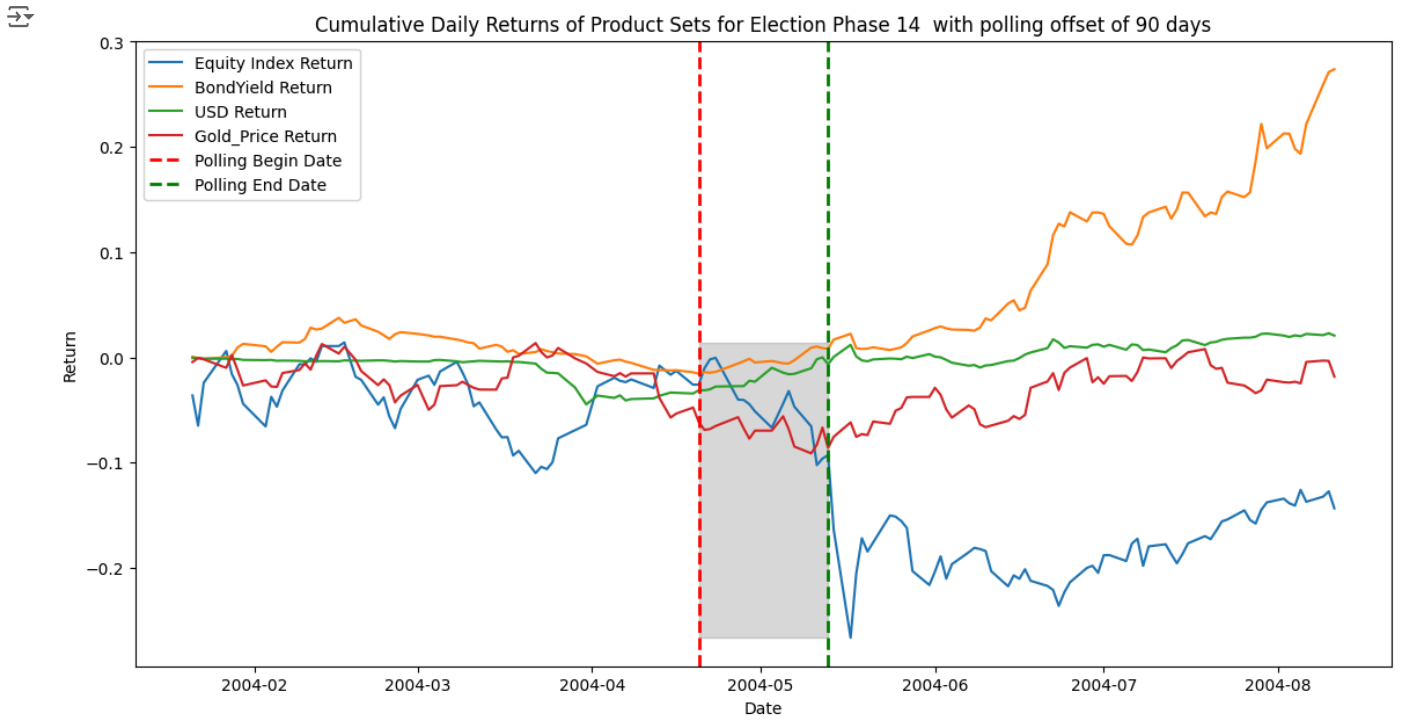
```

✓ Election Phase 14 with 90 days pre & post polling period

```

1 Offsetperioddays = 90
2 ElectionPhase, PollingPhase, PollingPhaseBefore, PollingPhaseAfter = ElectionPhaseA(df>Returns, PollingBigin, PollingEnd, Offsetperioddays)

```



```

EquityIndex    136.0
BondYield      136.0
USD            136.0
Gold_Price     136.0
Name: count, dtype: float64
EquityIndex    56.0
BondYield      56.0
USD            56.0
Gold_Price     56.0
Name: count, dtype: float64
EquityIndex    16.0
BondYield      16.0
USD            16.0
Gold_Price     16.0
Name: count, dtype: float64
EquityIndex    64.0
BondYield      64.0
USD            64.0
Gold_Price     64.0
Name: count, dtype: float64
=====

```

```

1 statistics(NameA, NameB, NameC, NameD, ElectionPhase, PollingPhaseBefore, PollingPhase, PollingPhaseAfter)

```

➡ Statistical Summary of the Election Phase 14 :

	Phase	Mean	Standard Deviation	Variance \
EquityIndex	Election Phase 14	-0.000889	0.022171	0.000492
BondYield	Election Phase 14	0.001813	0.008003	0.000064
USD	Election Phase 14	0.000157	0.003634	0.000013
Gold_Price	Election Phase 14	-0.000086	0.009995	0.000100
EquityIndex	Pre-Polling Period	-0.000309	0.018145	0.000329
BondYield	Pre-Polling Period	-0.000249	0.003687	0.000014
USD	Pre-Polling Period	-0.000618	0.003367	0.000011
Gold_Price	Pre-Polling Period	-0.000825	0.009874	0.000097
EquityIndex	Polling Period	-0.004277	0.018148	0.000329
BondYield	Polling Period	0.001410	0.003857	0.000015
USD	Polling Period	0.001783	0.004857	0.000024
Gold_Price	Polling Period	-0.002497	0.011946	0.000143
EquityIndex	Post-Polling Period	-0.000550	0.026156	0.000684
BondYield	Post-Polling Period	0.003717	0.010692	0.000114
USD	Post-Polling Period	0.000429	0.003392	0.000012
Gold_Price	Post-Polling Period	0.001163	0.009562	0.000091

	Skewness	Kurtosis
EquityIndex	-1.121248	7.462310
BondYield	1.045016	2.973597
USD	-0.505416	5.798929
Gold_Price	-0.139272	-0.170147
EquityIndex	0.274627	-0.308681
BondYield	0.727059	0.886202
USD	-2.630862	11.708126
Gold_Price	-0.266434	-0.199823
EquityIndex	-0.616929	-0.270408
BondYield	1.469577	1.817985
USD	0.662919	0.635282
Gold_Price	0.162156	-1.215352
EquityIndex	-1.523404	8.017536
BondYield	0.426967	0.481140
USD	0.080004	2.171923
Gold_Price	-0.051974	0.279986

Covariance Summary of the Election Phase 14 :

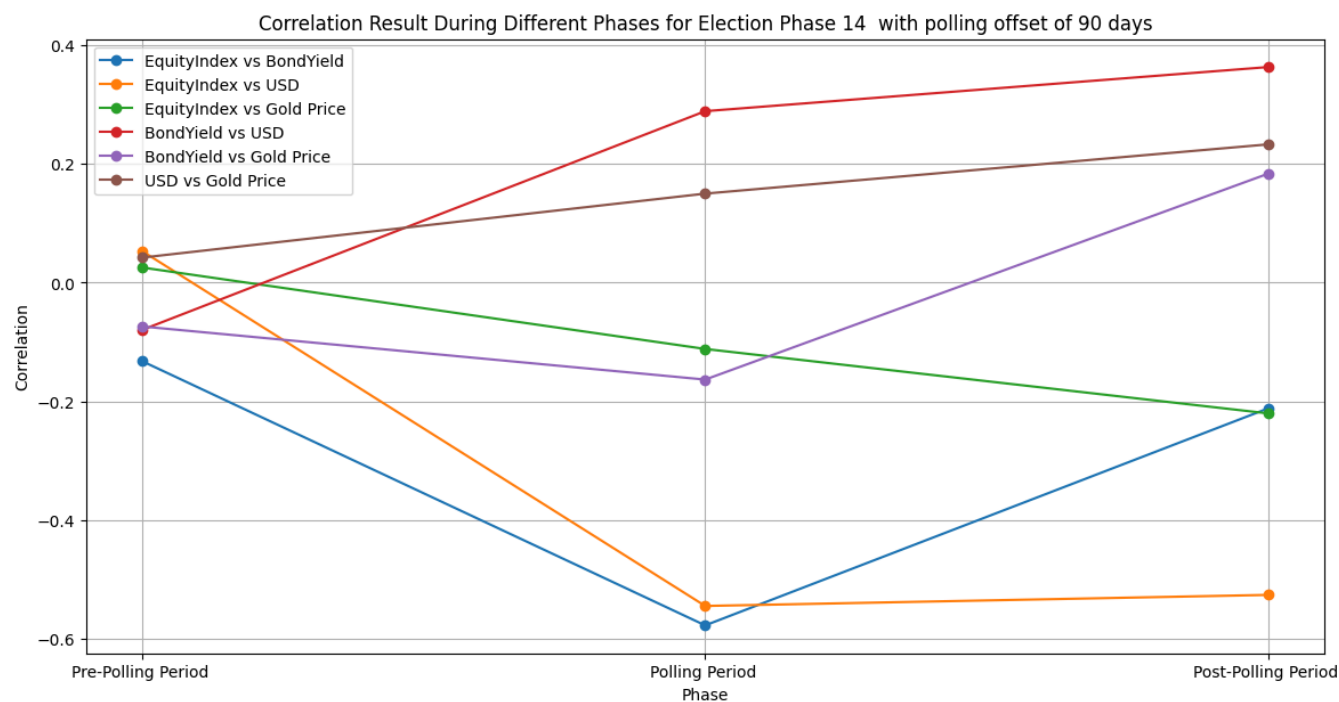
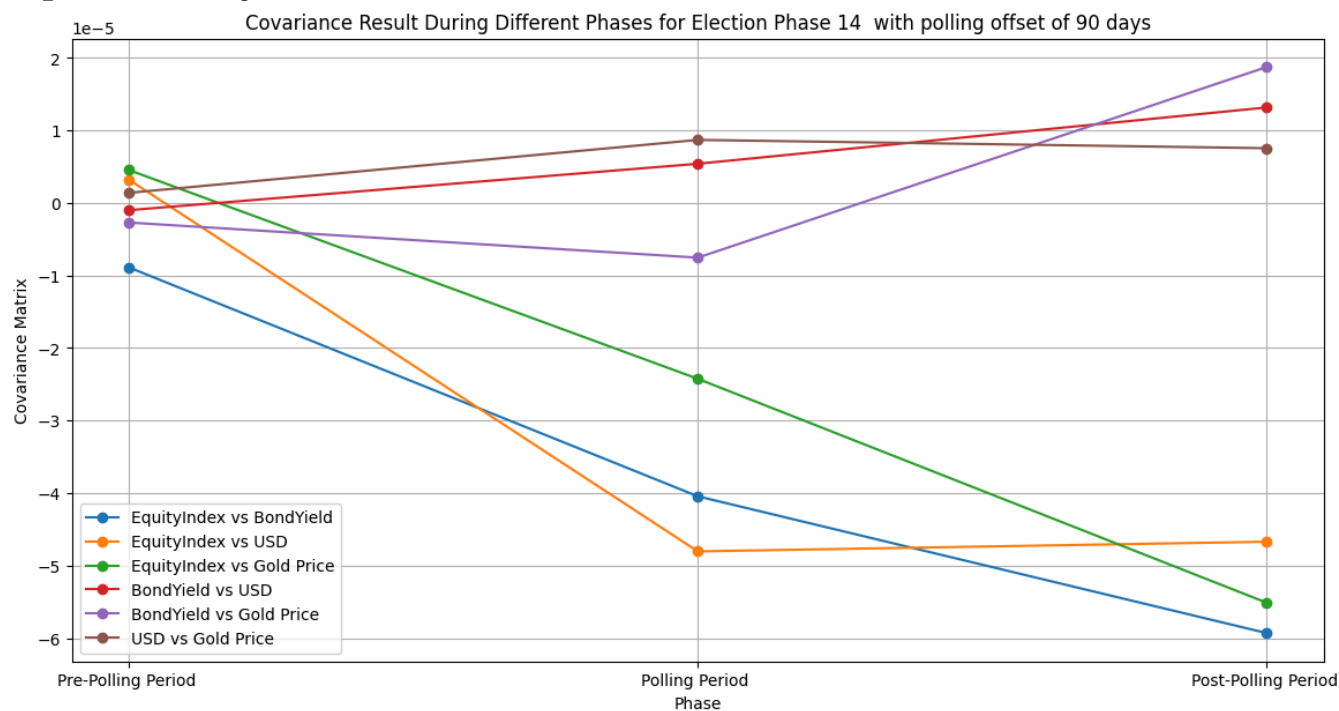
	EquityIndex	BondYield	USD	Gold_Price \
EquityIndex	0.000492	-3.581681e-05	-2.661632e-05	-0.000026
BondYield	-0.000036	6.404037e-05	7.181474e-06	0.000009
USD	-0.000027	7.181474e-06	1.320771e-05	0.000005
Gold_Price	-0.000026	8.697620e-06	5.001568e-06	0.000100
EquityIndex	0.000329	-8.873152e-06	3.226738e-06	0.000005
BondYield	-0.000009	1.359369e-05	-9.866664e-07	-0.000003
USD	0.000003	-9.866664e-07	1.133518e-05	0.000001
Gold_Price	0.000005	-2.691174e-06	1.404993e-06	0.000097
EquityIndex	0.000329	-4.044565e-05	-4.803915e-05	-0.000024
BondYield	-0.000004	1.488016e-05	5.414588e-06	-0.000008
USD	-0.000048	5.414588e-06	2.359025e-05	0.000009
Gold_Price	-0.000024	-7.531056e-06	8.705418e-06	0.000143
EquityIndex	0.000684	-5.931279e-05	-4.670895e-05	-0.000055
BondYield	-0.000059	1.143166e-04	1.317981e-05	0.000019
USD	-0.000047	1.317981e-05	1.150878e-05	0.000008
Gold_Price	-0.000055	1.876327e-05	7.558834e-06	0.000091

	Phase
EquityIndex	Election Phase 14
BondYield	Election Phase 14
USD	Election Phase 14
Gold_Price	Election Phase 14
EquityIndex	Pre-Polling Period
BondYield	Pre-Polling Period
USD	Pre-Polling Period
Gold_Price	Pre-Polling Period
EquityIndex	Polling Period
BondYield	Polling Period
USD	Polling Period
Gold_Price	Polling Period
EquityIndex	Post-Polling Period
BondYield	Post-Polling Period
USD	Post-Polling Period
Gold_Price	Post-Polling Period

correlations Summary of the Election Phase 14 :

	EquityIndex	BondYield	USD	Gold_Price \
EquityIndex	1.000000	-0.201871	-0.330330	-0.115404
BondYield	-0.201871	1.000000	0.246929	0.108740
USD	-0.330330	0.246929	1.000000	0.137692
Gold_Price	-0.115404	0.108740	0.137692	1.000000
EquityIndex	1.000000	-0.132635	0.052820	0.025401
BondYield	-0.132635	1.000000	-0.079485	-0.073925
USD	0.052820	-0.079485	1.000000	0.042265
Gold_Price	0.025401	-0.073925	0.042265	1.000000
EquityIndex	1.000000	-0.577733	-0.544990	-0.111819
BondYield	-0.577733	1.000000	0.288998	-0.163429
USD	-0.544990	0.288998	1.000000	0.150038
Gold_Price	-0.111819	-0.163429	0.150038	1.000000
EquityIndex	1.000000	-0.212088	-0.526389	-0.220394
BondYield	-0.212088	1.000000	0.363362	0.183522
USD	-0.526389	0.363362	1.000000	0.233010
Gold_Price	-0.220394	0.183522	0.233010	1.000000

	Phase
EquityIndex	Election Phase 14
BondYield	Election Phase 14
USD	Election Phase 14
Gold_Price	Election Phase 14
EquityIndex	Pre-Polling Period
BondYield	Pre-Polling Period
USD	Pre-Polling Period
Gold_Price	Pre-Polling Period
EquityIndex	Polling Period
BondYield	Polling Period
USD	Polling Period
Gold_Price	Polling Period
EquityIndex	Post-Polling Period
BondYield	Post-Polling Period
USD	Post-Polling Period
Gold_Price	Post-Polling Period



```
1 statistical_levene_test(NameA, NameB, NameC, NameD, ElectionPhase, PollingPhaseBefore, PollingPhase, PollingPhaseAfter)
```

```

Levenes Test Result for Election Phase 14 with polling offset of 90 days with comparision of Pre-Polling vs Polling Period
Variable Levene's Test Statistic p-value
EquityIndex 0.057378 0.811389
BondYield 0.040139 0.841789
USD 4.473277 0.037990
Gold Price 2.258882 0.137348
Levenes Test Result for Election Phase 14 with polling offset of 90 days with comparision of Pre-Polling vs Post-Polling Period
Variable Levene's Test Statistic p-value
EquityIndex 0.436391 0.510157
BondYield 22.879931 0.000005
USD 3.872034 0.051443
Gold Price 0.283621 0.595339

```

```
1 statistical_boxm_test(NameA,NameB, NameC, NameD, ElectionPhase,PollingPhaseBefore,PollingPhase,PollingPhaseAfter)
```

```

Boxes M Test Result for Election Phase 14 with polling offset of 90 days with comparision of Pre-Polling vs Polling Period
Box's M statistic: 0.44987133332426904
P-value: 0.9999960196232486
Boxes M Test Result for Election Phase 14 with polling offset of 90 days with comparision of Pre-Polling vs Post-Polling Period
Box's M statistic: 0.44987133332426904
P-value: 0.9999960196232486

```

```
1 statistical_fisher_test(NameA,NameB, NameC, NameD, ElectionPhase,PollingPhaseBefore,PollingPhase,PollingPhaseAfter)
```

```

Fisher's Z Test Result for Election Phase 14 with polling offset of 90 days with comparision of Pre-Polling vs Polling Period
Fisher's Z-Test: Z = EquityIndex BondYield USD Gold_Price
EquityIndex NaN -1.698321 -2.145696 -0.444892
BondYield -1.698321 NaN 1.218497 -0.293529
USD -2.145696 1.218497 NaN 0.351821
Gold_Price -0.444892 -0.293529 0.351821 NaN
P-value = 0 1 2 3
0 NaN 0.089447 0.031897 0.656398
1 0.089447 NaN 0.223035 0.769118
2 0.031897 0.223035 NaN 0.724972
3 0.656398 0.769118 0.724972 NaN
Fisher's Z Test Result for Election Phase 14 with polling offset of 90 days with comparision of Pre-Polling vs Post-Polling Period
Fisher's Z-Test: Z = EquityIndex BondYield USD Gold_Price
EquityIndex NaN -0.436335 -3.397626 -1.328557
BondYield -0.436335 NaN 2.451846 1.382923
USD -3.397626 2.451846 NaN 1.038873
Gold_Price -1.328557 1.382923 1.038873 NaN
P-value = 0 1 2 3
0 NaN 0.662593 0.000680 0.183994
1 0.662593 NaN 0.014213 0.166688
2 0.000680 0.014213 NaN 0.298864
3 0.183994 0.166688 0.298864 NaN
/usr/local/lib/python3.10/dist-packages/pandas/core/internals/blocks.py:366: RuntimeWarning: divide by zero encountered in arctanh
result = func(self.values, **kwargs)
/usr/local/lib/python3.10/dist-packages/pandas/core/internals/blocks.py:366: RuntimeWarning: divide by zero encountered in arctanh
result = func(self.values, **kwargs)

```

```
1 Start coding or generate with AI.
```

▼ Election Phase 14 with 180 days pre & post polling period

```

1 Offsetperioddays = 180
2 ElectionPhase, PollingPhase, PollingPhaseBefore, PollingPhaseAfter = ElectionPhaseA(df>Returns, PollingBegin, PollingEnd, Offsetperioddays)

```




Cumulative Daily Returns of Product Sets for Election Phase 14 with polling offset of 180 days



```

EquityIndex    258.0
BondYield      258.0
USD            258.0
Gold_Price     258.0
Name: count, dtype: float64
EquityIndex    118.0
BondYield      118.0
USD            118.0
Gold_Price     118.0
Name: count, dtype: float64
EquityIndex    16.0
BondYield      16.0
USD            16.0
Gold_Price     16.0
Name: count, dtype: float64
EquityIndex    124.0
BondYield      124.0
USD            124.0
Gold_Price     124.0
Name: count, dtype: float64
=====

```

```
1 statistics(NameA, NameB, NameC, NameD, ElectionPhase, PollingPhaseBefore, PollingPhase, PollingPhaseAfter)
```

➡ Statistical Summary of the Election Phase 14 :

	Phase	Mean	Standard Deviation	Variance \
EquityIndex	Election Phase 14	1.012048e-03	0.018067	0.000326
BondYield	Election Phase 14	1.381317e-03	0.008751	0.000077
USD	Election Phase 14	-1.906396e-05	0.002858	0.000008
Gold_Price	Election Phase 14	4.895019e-04	0.008740	0.000076
EquityIndex	Pre-Polling Period	1.911022e-03	0.015959	0.000255
BondYield	Pre-Polling Period	-1.882925e-06	0.004452	0.000020
USD	Pre-Polling Period	-2.837273e-04	0.002486	0.000006
Gold_Price	Pre-Polling Period	1.620920e-04	0.008356	0.000070
EquityIndex	Polling Period	-4.277314e-03	0.018148	0.000329
BondYield	Polling Period	1.410011e-03	0.003857	0.000015
USD	Polling Period	1.782762e-03	0.004857	0.000024
Gold_Price	Polling Period	-2.496690e-03	0.011946	0.000143
EquityIndex	Post-Polling Period	8.390716e-04	0.019878	0.000395
BondYield	Post-Polling Period	2.693886e-03	0.011652	0.000136
USD	Post-Polling Period	2.993705e-07	0.002796	0.000008
Gold_Price	Post-Polling Period	1.186385e-03	0.008605	0.000074

	Skewness	Kurtosis
EquityIndex	-1.277875	10.148464
BondYield	0.702845	3.299083
USD	-0.459983	9.149939
Gold_Price	-0.252674	0.142406
EquityIndex	0.012342	-0.356563
BondYield	0.516868	2.561558
USD	-3.342479	21.936367
Gold_Price	-0.474706	0.363402
EquityIndex	-0.616929	-0.270408
BondYield	1.469577	1.817985
USD	0.662919	0.635282
Gold_Price	0.162156	-1.215352
EquityIndex	-1.932773	14.383313
BondYield	0.300085	0.873945
USD	0.239425	3.272420
Gold_Price	-0.082929	0.225385

Covariance Summary of the Election Phase 14 :

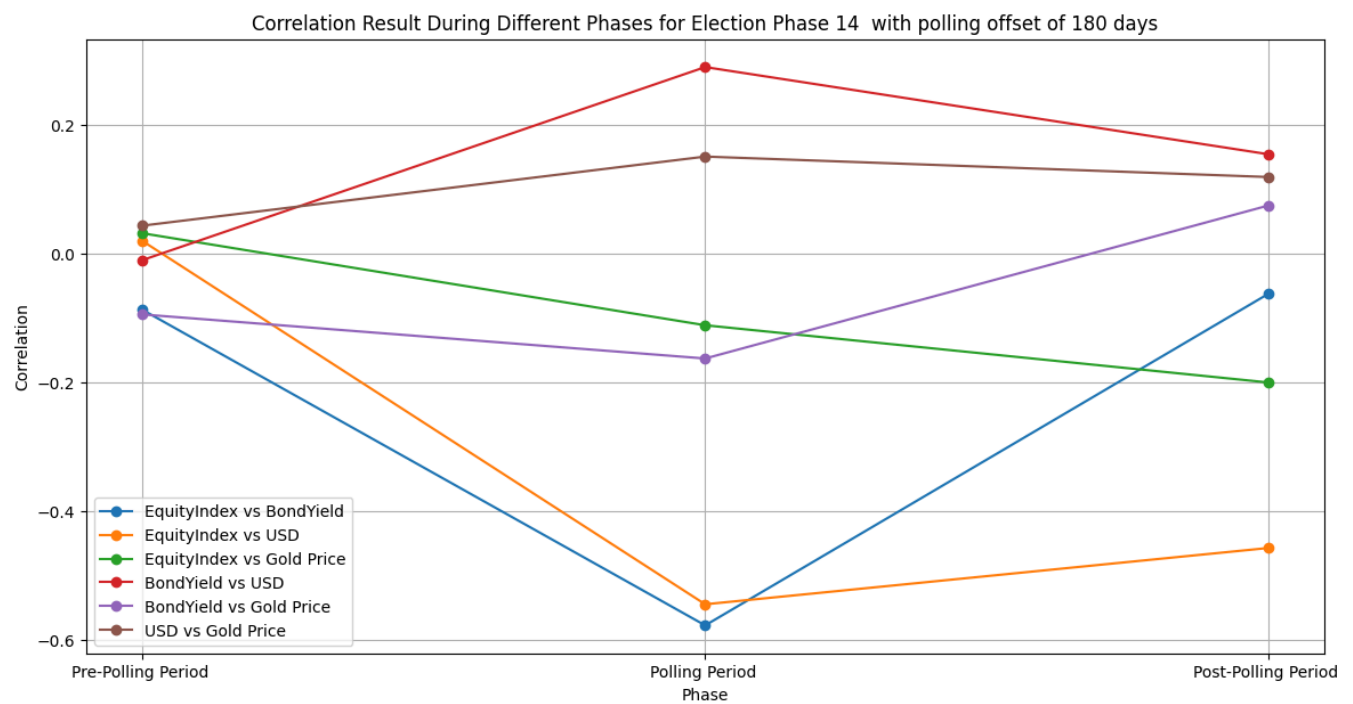
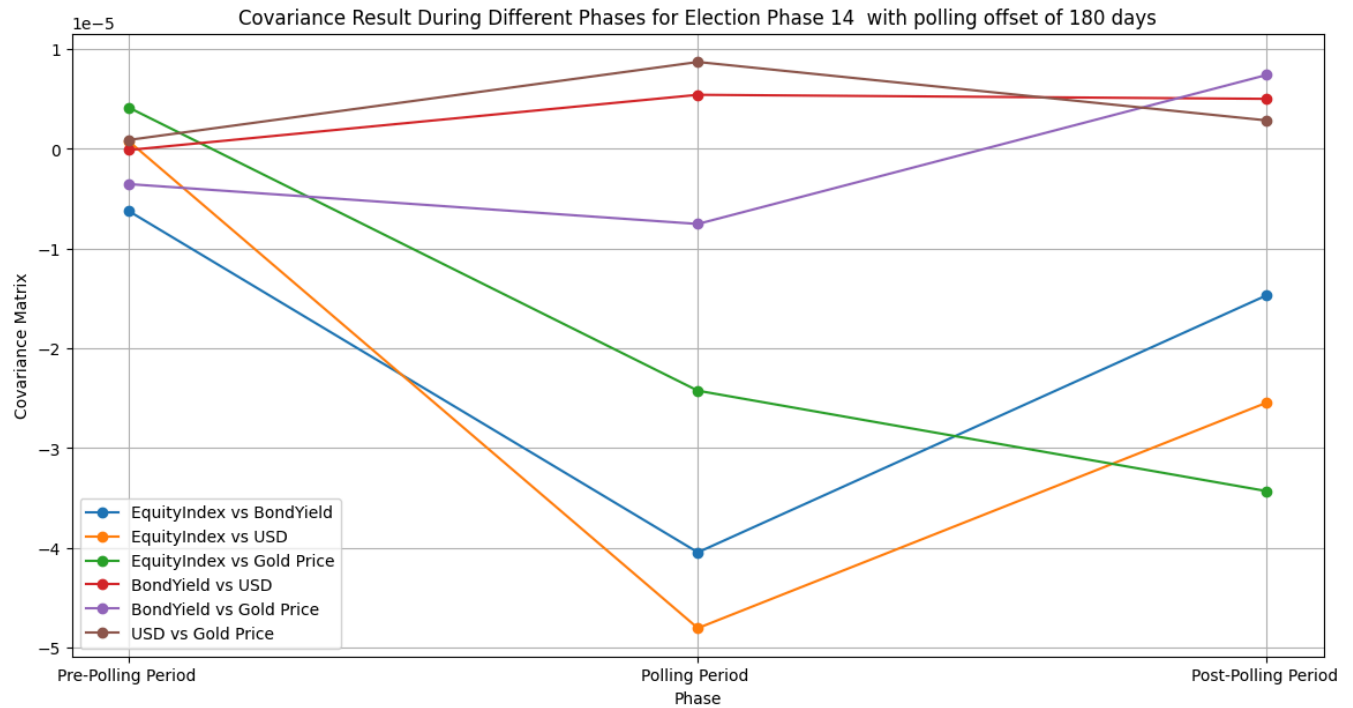
	EquityIndex	BondYield	USD	Gold_Price \
EquityIndex	3.264045e-04	-1.291563e-05	-1.533769e-05	-1.516491e-05
BondYield	-1.291563e-05	7.658304e-05	2.843088e-06	2.140962e-06
USD	-1.533769e-05	2.843088e-06	8.165663e-06	1.986578e-06
Gold_Price	-1.516491e-05	2.140962e-06	1.986578e-06	7.639360e-05
EquityIndex	2.546840e-04	-6.243647e-06	7.518986e-07	4.131399e-06
BondYield	-6.243647e-06	1.982066e-05	-1.178042e-07	-3.535701e-06
USD	7.518986e-07	-1.178042e-07	6.180295e-06	8.894715e-07
Gold_Price	4.131399e-06	-3.535701e-06	8.894715e-07	6.982454e-05
EquityIndex	3.293680e-04	-4.044565e-05	-4.803915e-05	-2.424258e-05
BondYield	-4.044565e-05	1.488016e-05	5.414588e-06	-7.531056e-06
USD	-4.803915e-05	5.414588e-06	2.359025e-05	8.705418e-06
Gold_Price	-2.424258e-05	-7.531056e-06	8.705418e-06	1.427069e-04
EquityIndex	3.951276e-04	-1.467330e-05	-2.543246e-05	-3.431023e-05
BondYield	-1.467330e-05	1.357741e-04	5.008629e-06	7.409581e-06
USD	-2.543246e-05	5.008629e-06	7.816014e-06	2.846280e-06
Gold_Price	-3.431023e-05	7.409581e-06	2.846280e-06	7.404499e-05

	Phase
EquityIndex	Election Phase 14
BondYield	Election Phase 14
USD	Election Phase 14
Gold_Price	Election Phase 14
EquityIndex	Pre-Polling Period
BondYield	Pre-Polling Period
USD	Pre-Polling Period
Gold_Price	Pre-Polling Period
EquityIndex	Polling Period
BondYield	Polling Period
USD	Polling Period
Gold_Price	Polling Period
EquityIndex	Post-Polling Period
BondYield	Post-Polling Period
USD	Post-Polling Period
Gold_Price	Post-Polling Period

correlations Summary of the Election Phase 14 :

	EquityIndex	BondYield	USD	Gold_Price \
EquityIndex	1.000000	-0.081690	-0.297089	-0.096036
BondYield	-0.081690	1.000000	0.113692	0.027991
USD	-0.297089	0.113692	1.000000	0.079539
Gold_Price	-0.096036	0.027991	0.079539	1.000000
EquityIndex	1.000000	-0.087878	0.018952	0.030981
BondYield	-0.087878	1.000000	-0.010644	-0.095041
USD	0.018952	-0.010644	1.000000	0.042818
Gold_Price	0.030981	-0.095041	0.042818	1.000000
EquityIndex	1.000000	-0.577733	-0.544990	-0.111819
BondYield	-0.577733	1.000000	0.288998	-0.163429
USD	-0.544990	0.288998	1.000000	0.150038
Gold_Price	-0.111819	-0.163429	0.150038	1.000000
EquityIndex	1.000000	-0.063351	-0.457643	-0.200589
BondYield	-0.063351	1.000000	0.153751	0.073899
USD	-0.457643	0.153751	1.000000	0.118314
Gold_Price	-0.200589	0.073899	0.118314	1.000000

	Phase
EquityIndex	Election Phase 14
BondYield	Election Phase 14
USD	Election Phase 14
Gold_Price	Election Phase 14
EquityIndex	Pre-Polling Period
BondYield	Pre-Polling Period
USD	Pre-Polling Period
Gold_Price	Pre-Polling Period
EquityIndex	Polling Period
BondYield	Polling Period
USD	Polling Period
Gold_Price	Polling Period
EquityIndex	Post-Polling Period
BondYield	Post-Polling Period
USD	Post-Polling Period
Gold_Price	Post-Polling Period



```
1 statistical_levene_test(NameA,NameB, NameC, NameD, ElectionPhase,PollingPhaseBefore,PollingPhase,PollingPhaseAfter)
```

```

↳ Levenes Test Result for Election Phase 14 with polling offset of 180 days with comparision of Pre-Polling vs Polling Period
Variable Levene's Test Statistic p-value
EquityIndex 0.094673 0.758803
BondYield 0.332603 0.565112
USD 12.098588 0.000684
Gold Price 7.528716 0.006917
Levenes Test Result for Election Phase 14 with polling offset of 180 days with comparision of Pre-Polling vs Post-Polling Period
Variable Levene's Test Statistic p-value
EquityIndex 0.153933 6.951532e-01
BondYield 44.936625 1.441790e-10
USD 9.412632 2.402253e-03
Gold Price 0.222665 6.374451e-01

1 statistical_boxm_test(NameA,NameB, NameC, NameD, ElectionPhase,PollingPhaseBefore,PollingPhase,PollingPhaseAfter)

↳ Box's M Test Result for Election Phase 14 with polling offset of 180 days with comparision of Pre-Polling vs Polling Period
Box's M statistic: 0.7417437205226377
P-value: 0.9999570146814151
Box's M Test Result for Election Phase 14 with polling offset of 180 days with comparision of Pre-Polling vs Post-Polling Period
Box's M statistic: 0.7417437205226377
P-value: 0.9999570146814151

1 statistical_fisher_test(NameA,NameB, NameC, NameD, ElectionPhase,PollingPhaseBefore,PollingPhase,PollingPhaseAfter)

↳ Fisher's Z Test Result for Election Phase 14 with polling offset of 180 days with comparision of Pre-Polling vs Polling Period
Fisher's Z-Test: Z = EquityIndex BondYield USD Gold_Price
EquityIndex NaN -1.951248 -2.153677 -0.489665
BondYield -1.951248 NaN 1.053007 -0.237790
USD -2.153677 1.053007 NaN 0.370242
Gold_Price -0.489665 -0.237790 0.370242 NaN
P-value = 0 1 2 3
0 NaN 0.051027 0.031266 0.624371
1 0.051027 NaN 0.292338 0.812044
2 0.031266 0.292338 NaN 0.711202
3 0.624371 0.812044 0.711202 NaN
Fisher's Z Test Result for Election Phase 14 with polling offset of 180 days with comparision of Pre-Polling vs Post-Polling Period
Fisher's Z-Test: Z = EquityIndex BondYield USD Gold_Price
EquityIndex NaN 0.189428 -3.941305 -1.799394
BondYield 0.189428 NaN 1.271772 1.300480
USD -3.941305 1.271772 NaN 0.583786
Gold_Price -1.799394 1.300480 0.583786 NaN
P-value = 0 1 2 3
0 NaN 0.849757 0.000081 0.071956
1 0.849757 NaN 0.203454 0.193437
2 0.000081 0.203454 NaN 0.559364
3 0.071956 0.193437 0.559364 NaN
/usr/local/lib/python3.10/dist-packages/pandas/core/internals/blocks.py:366: RuntimeWarning: divide by zero encountered in arctanh
result = func(self.values, **kwargs)
/usr/local/lib/python3.10/dist-packages/pandas/core/internals/blocks.py:366: RuntimeWarning: divide by zero encountered in arctanh
result = func(self.values, **kwargs)

```

▼ Election Phase 14 with 365 days pre & post polling period

```

1 Offsetperioddays = 365
2 ElectionPhase, PollingPhase, PollingPhaseBefore, PollingPhaseAfter = ElectionPhaseA(df>Returns, PollingBegin, PollingEnd, Offsetperioddays)

```



Cumulative Daily Returns of Product Sets for Election Phase 14 with polling offset of 365 days



```

EquityIndex    506.0
BondYield      506.0
USD            506.0
Gold_Price     506.0
Name: count, dtype: float64
EquityIndex    244.0
BondYield      244.0
USD            244.0
Gold_Price     244.0
Name: count, dtype: float64
EquityIndex    16.0
BondYield      16.0
USD            16.0
Gold_Price     16.0
Name: count, dtype: float64
EquityIndex    246.0
BondYield      246.0
USD            246.0
Gold_Price     246.0
Name: count, dtype: float64
=====

```

```
1 statistics(NameA,NameB, NameC, Named, ElectionPhase,PollingPhaseBefore,PollingPhase,PollingPhaseAfter)
```

Statistical Summary of the Election Phase 14 :

	Phase	Mean	Standard Deviation	Variance \
EquityIndex	Election Phase 14	0.001600	0.015387	0.000237
BondYield	Election Phase 14	0.000427	0.007936	0.000063
USD	Election Phase 14	-0.000168	0.002547	0.000006
Gold_Price	Election Phase 14	0.000361	0.008714	0.000076
EquityIndex	Pre-Polling Period	0.002865	0.014361	0.000206
BondYield	Pre-Polling Period	-0.000586	0.005132	0.000026
USD	Pre-Polling Period	-0.000313	0.002094	0.000004
Gold_Price	Pre-Polling Period	0.000589	0.009420	0.000089
EquityIndex	Polling Period	-0.004277	0.018148	0.000329
BondYield	Polling Period	0.001410	0.003857	0.000015
USD	Polling Period	0.001783	0.004857	0.000024
Gold_Price	Polling Period	-0.002497	0.011946	0.000143
EquityIndex	Post-Polling Period	0.000727	0.016083	0.000259
BondYield	Post-Polling Period	0.001369	0.010041	0.000101
USD	Post-Polling Period	-0.000152	0.002703	0.000007
Gold_Price	Post-Polling Period	0.000320	0.007693	0.000059

	Skewness	Kurtosis
EquityIndex	-1.173726	10.478388
BondYield	-0.164007	7.505411
USD	-0.323905	8.541240
Gold_Price	-0.275438	0.821477
EquityIndex	-0.168665	-0.032000
BondYield	-3.243468	31.194128
USD	-2.921775	22.523125
Gold_Price	-0.371002	0.820223
EquityIndex	-0.616929	-0.270408
BondYield	1.469577	1.817985
USD	0.662919	0.635282
Gold_Price	0.162156	-1.215352
EquityIndex	-1.884381	17.636519
BondYield	0.051587	2.884521
USD	0.183073	2.884323
Gold_Price	-0.135183	0.877887

Covariance Summary of the Election Phase 14 :

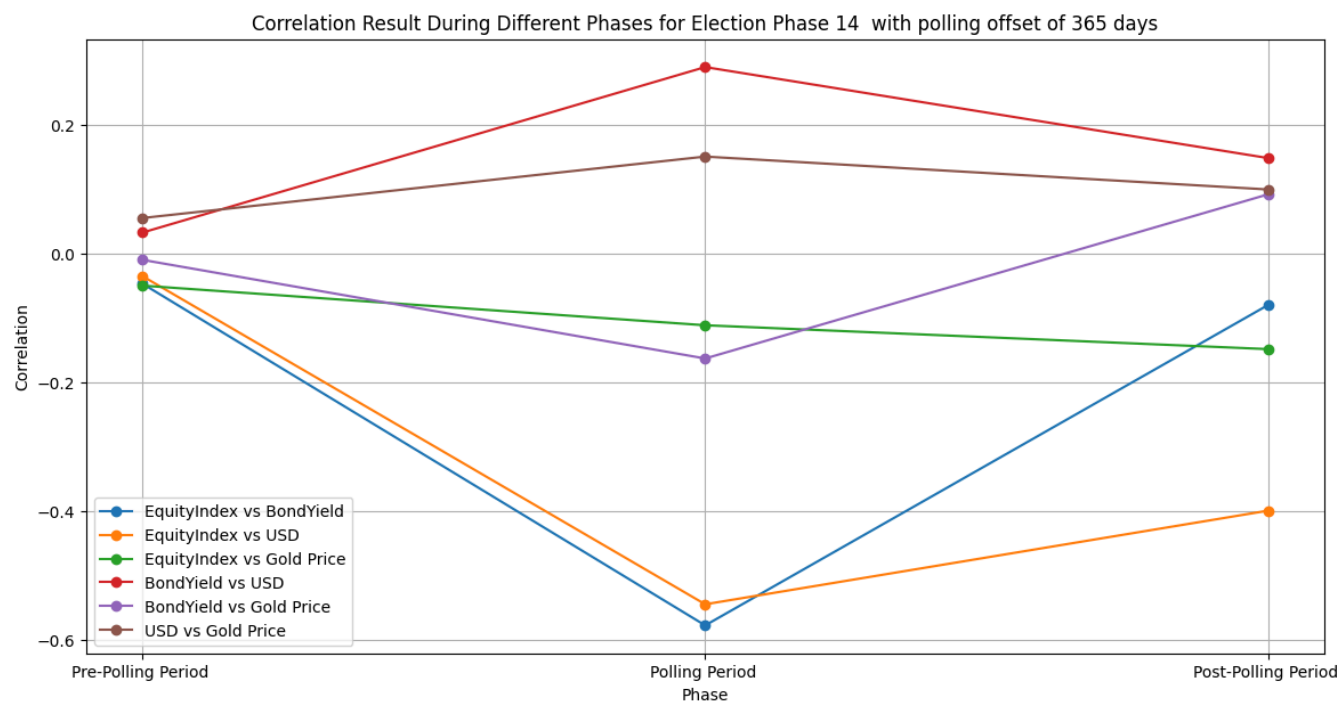
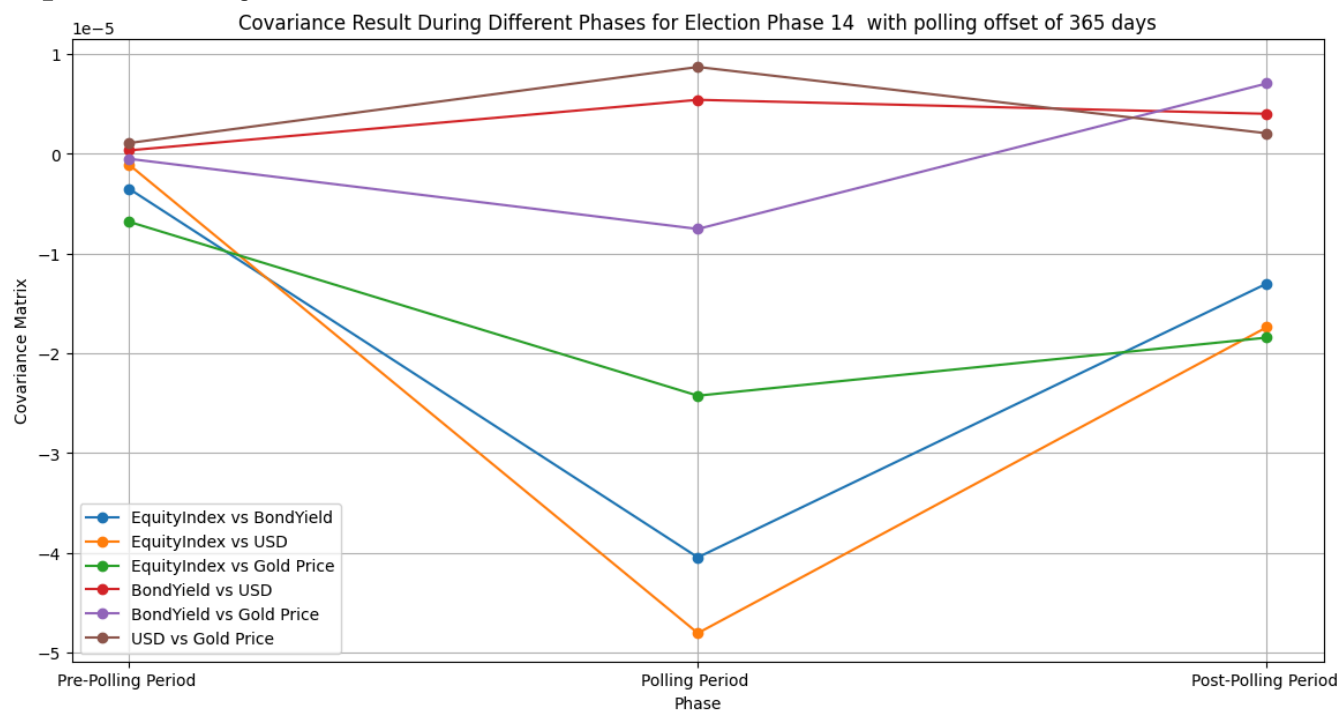
	EquityIndex	BondYield	USD	Gold_Price \
EquityIndex	0.000237	-1.039039e-05	-1.083055e-05	-1.224060e-05
BondYield	-0.000010	6.298202e-05	2.411307e-06	2.740389e-06
USD	-0.000011	2.411307e-06	6.485797e-06	1.582715e-06
Gold_Price	-0.000012	2.740389e-06	1.582715e-06	7.593530e-05
EquityIndex	0.000206	-3.488090e-06	-1.070031e-06	-6.803894e-06
BondYield	-0.000003	2.633249e-05	3.444303e-07	-4.973904e-07
USD	-0.000001	3.444303e-07	4.383645e-06	1.078067e-06
Gold_Price	-0.000007	-4.973904e-07	1.078067e-06	8.873712e-05
EquityIndex	0.000329	-4.044565e-05	-4.803915e-05	-2.424258e-05
BondYield	-0.000040	1.488016e-05	5.414588e-06	-7.531056e-06
USD	-0.000048	5.414588e-06	2.359025e-05	8.705418e-06
Gold_Price	-0.000024	-7.531056e-06	8.705418e-06	1.427069e-04
EquityIndex	0.000259	-1.300142e-05	-1.737551e-05	-1.841871e-05
BondYield	-0.000013	1.008149e-04	4.009691e-06	7.055851e-06
USD	-0.000017	4.009691e-06	7.306710e-06	2.057872e-06
Gold_Price	-0.000018	7.055851e-06	2.057872e-06	5.918281e-05

	Phase
EquityIndex	Election Phase 14
BondYield	Election Phase 14
USD	Election Phase 14
Gold_Price	Election Phase 14
EquityIndex	Pre-Polling Period
BondYield	Pre-Polling Period
USD	Pre-Polling Period
Gold_Price	Pre-Polling Period
EquityIndex	Polling Period
BondYield	Polling Period
USD	Polling Period
Gold_Price	Polling Period
EquityIndex	Post-Polling Period
BondYield	Post-Polling Period
USD	Post-Polling Period
Gold_Price	Post-Polling Period

correlations Summary of the Election Phase 14 :

	EquityIndex	BondYield	USD	Gold_Price \
EquityIndex	1.000000	-0.085090	-0.276390	-0.091292
BondYield	-0.085090	1.000000	0.119306	0.039626
USD	-0.276390	0.119306	1.000000	0.071318
Gold_Price	-0.091292	0.039626	0.071318	1.000000
EquityIndex	1.000000	-0.047332	-0.035587	-0.050294
BondYield	-0.047332	1.000000	0.032058	-0.010290
USD	-0.035587	0.032058	1.000000	0.054661
Gold_Price	-0.050294	-0.010290	0.054661	1.000000
EquityIndex	1.000000	-0.577733	-0.544990	-0.111819
BondYield	-0.577733	1.000000	0.288998	-0.163429
USD	-0.544990	0.288998	1.000000	0.150038
Gold_Price	-0.111819	-0.163429	0.150038	1.000000
EquityIndex	1.000000	-0.080512	-0.399678	-0.148866
BondYield	-0.080512	1.000000	0.147736	0.091346
USD	-0.399678	0.147736	1.000000	0.098960
Gold_Price	-0.148866	0.091346	0.098960	1.000000

	Phase
EquityIndex	Election Phase 14
BondYield	Election Phase 14
USD	Election Phase 14
Gold_Price	Election Phase 14
EquityIndex	Pre-Polling Period
BondYield	Pre-Polling Period
USD	Pre-Polling Period
Gold_Price	Pre-Polling Period
EquityIndex	Polling Period
BondYield	Polling Period
USD	Polling Period
Gold_Price	Polling Period
EquityIndex	Post-Polling Period
BondYield	Post-Polling Period
USD	Post-Polling Period
Gold_Price	Post-Polling Period



```
1 statistical_levene_test(NameA,NameB, NameC, NameD, ElectionPhase,PollingPhaseBefore,PollingPhase,PollingPhaseAfter)
```

```

↳ Levenes Test Result for Election Phase 14 with polling offset of 365 days with comparision of Pre-Polling vs Polling Period
Variable Levene's Test Statistic p-value
EquityIndex 0.913192 0.340163
BondYield 0.170283 0.680203
USD 20.776420 0.000008
Gold Price 4.096950 0.043991
Levenes Test Result for Election Phase 14 with polling offset of 365 days with comparision of Pre-Polling vs Post-Polling Period
Variable Levene's Test Statistic p-value
EquityIndex 0.756832 3.847495e-01
BondYield 52.992388 1.348901e-12
USD 21.134502 5.460595e-06
Gold Price 7.572327 6.147698e-03

1 statistical_boxm_test(NameA,NameB, NameC, NameD, ElectionPhase,PollingPhaseBefore,PollingPhase,PollingPhaseAfter)

↳ Boxs M Test Result for Election Phase 14 with polling offset of 365 days with comparision of Pre-Polling vs Polling Period
Box's M statistic: 0.9347789195812868
P-value: 0.9998738098423713
Boxs M Test Result for Election Phase 14 with polling offset of 365 days with comparision of Pre-Polling vs Post-Polling Period
Box's M statistic: 0.9347789195812868
P-value: 0.9998738098423713

1 statistical_fisher_test(NameA,NameB, NameC, NameD, ElectionPhase,PollingPhaseBefore,PollingPhase,PollingPhaseAfter)

↳ Fisher's Z Test Result for Election Phase 14 with polling offset of 365 days with comparision of Pre-Polling vs Polling Period
Fisher's Z-Test: Z = EquityIndex BondYield USD Gold_Price
EquityIndex NaN -2.148285 -2.021633 -0.217580
BondYield -2.148285 NaN 0.932117 -0.543029
USD -2.021633 0.932117 NaN 0.338788
Gold_Price -0.217580 -0.543029 0.338788 NaN
P-value = 0 1 2 3
0 NaN 0.031691 0.043214 0.827757
1 0.031691 NaN 0.351276 0.587110
2 0.043214 0.351276 NaN 0.734769
3 0.827757 0.587110 0.734769 NaN
Fisher's Z Test Result for Election Phase 14 with polling offset of 365 days with comparision of Pre-Polling vs Post-Polling Period
Fisher's Z-Test: Z = EquityIndex BondYield USD Gold_Price
EquityIndex NaN -0.366512 -4.264263 -1.096071
BondYield -0.366512 NaN 1.284310 1.120794
USD -4.264263 1.284310 NaN 0.490262
Gold_Price -1.096071 1.120794 0.490262 NaN
P-value = 0 1 2 3
0 NaN 0.713983 0.000020 0.273048
1 0.713983 NaN 0.199033 0.262375
2 0.000020 0.199033 NaN 0.623949
3 0.273048 0.262375 0.623949 NaN
/usr/local/lib/python3.10/dist-packages/pandas/core/internals/blocks.py:366: RuntimeWarning: divide by zero encountered in arctanh
result = func(self.values, **kwargs)
/usr/local/lib/python3.10/dist-packages/pandas/core/internals/blocks.py:366: RuntimeWarning: divide by zero encountered in arctanh
result = func(self.values, **kwargs)

```

1 Start coding or [generate](#) with AI.

1 Start coding or [generate](#) with AI.

1 Start coding or [generate](#) with AI.

▼ Election Phase 15

```

1 NameA = 'Election Phase 15 '
2 NameB = "Pre-Polling Period "
3 NameC = "Polling Period "
4 NameD = "Post-Polling Period "
5 PollingBigin = pd.to_datetime('2009-04-16')
6 PollingEnd = pd.to_datetime('2009-05-16')

```

▼ Election Phase 15 with 90 days pre & post polling period

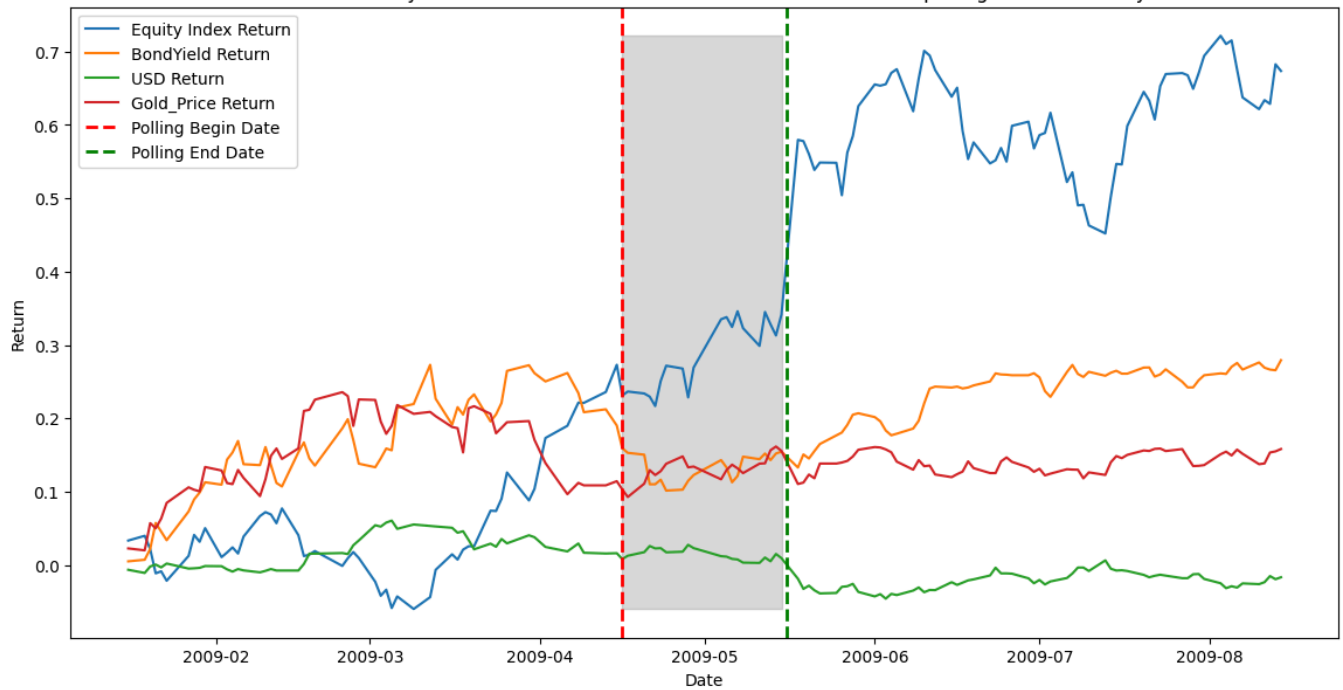
```

1 Offsetperioddays = 90
2 ElectionPhase, PollingPhase, PollingPhaseBefore, PollingPhaseAfter = ElectionPhaseA(df>Returns, PollingBigin, PollingEnd, Offsetperioddays)

```




Cumulative Daily Returns of Product Sets for Election Phase 15 with polling offset of 90 days



```

EquityIndex    138.0
BondYield      138.0
USD            138.0
Gold_Price     138.0
Name: count, dtype: float64
EquityIndex    53.0
BondYield      53.0
USD            53.0
Gold_Price     53.0
Name: count, dtype: float64
EquityIndex    20.0
BondYield      20.0
USD            20.0
Gold_Price     20.0
Name: count, dtype: float64
EquityIndex    65.0
BondYield      65.0
USD            65.0
Gold_Price     65.0
Name: count, dtype: float64
=====

```

```
1 statistics(NameA, NameB, NameC, NameD, ElectionPhase, PollingPhaseBefore, PollingPhase, PollingPhaseAfter)
```

Statistical Summary of the Election Phase 15 :

	Phase	Mean	Standard Deviation	Variance \
EquityIndex	Election Phase 15	0.004058	0.025814	0.000666
BondYield	Election Phase 15	0.001902	0.015271	0.000233
USD	Election Phase 15	-0.000099	0.006665	0.000044
Gold_Price	Election Phase 15	0.001159	0.013737	0.000189
EquityIndex	Pre-Polling Period	0.004809	0.022304	0.000497
BondYield	Pre-Polling Period	0.003515	0.021340	0.000455
USD	Pre-Polling Period	0.000328	0.006902	0.000048
Gold_Price	Pre-Polling Period	0.002226	0.019168	0.000367
EquityIndex	Polling Period	0.002870	0.022840	0.000522
BondYield	Polling Period	-0.001422	0.014124	0.000199
USD	Polling Period	-0.000315	0.005931	0.000035
Gold_Price	Polling Period	0.001867	0.010086	0.000102
EquityIndex	Post-Polling Period	0.003810	0.029436	0.000866
BondYield	Post-Polling Period	0.001610	0.008018	0.000064
USD	Post-Polling Period	-0.000380	0.006759	0.000046
Gold_Price	Post-Polling Period	0.000071	0.008540	0.000073

	Skewness	Kurtosis
EquityIndex	2.128015	13.264379
BondYield	0.374837	1.256932
USD	-0.260812	1.588171
Gold_Price	0.296821	2.046803
EquityIndex	0.054069	-0.261545
BondYield	0.261888	-0.521262
USD	0.369508	0.287943
Gold_Price	0.288148	-0.021152
EquityIndex	0.426578	-0.595120
BondYield	-0.608758	0.218900
USD	0.288996	-0.903175
Gold_Price	-0.077109	-1.208689
EquityIndex	3.019124	16.889101
BondYield	0.313293	1.100759
USD	-0.927268	2.847660
Gold_Price	-1.215290	5.270315

Covariance Summary of the Election Phase 15 :

	EquityIndex	BondYield	USD	Gold_Price \
EquityIndex	0.000666	-0.000050	-0.000080	-0.000077
BondYield	-0.000050	0.000233	-0.000011	0.000031
USD	-0.000080	-0.000011	0.000044	0.000011
Gold_Price	-0.000077	0.000031	0.000011	0.000189
EquityIndex	0.000497	-0.000100	-0.000055	-0.000092
BondYield	-0.000100	0.000455	-0.000036	0.000081
USD	-0.000055	-0.000036	0.000048	0.000011
Gold_Price	-0.000092	0.000081	0.000011	0.000367
EquityIndex	0.000522	0.000107	-0.000032	-0.000027
BondYield	0.000107	0.000199	-0.000003	-0.000066
USD	-0.000032	-0.000003	0.000035	0.000015
Gold_Price	-0.000027	-0.000066	0.000015	0.000102
EquityIndex	0.000866	-0.000060	-0.000118	-0.000082
BondYield	-0.000060	0.000064	0.000005	0.000018
USD	-0.000118	0.000005	0.000046	0.000010
Gold_Price	-0.000082	0.000018	0.000010	0.000073

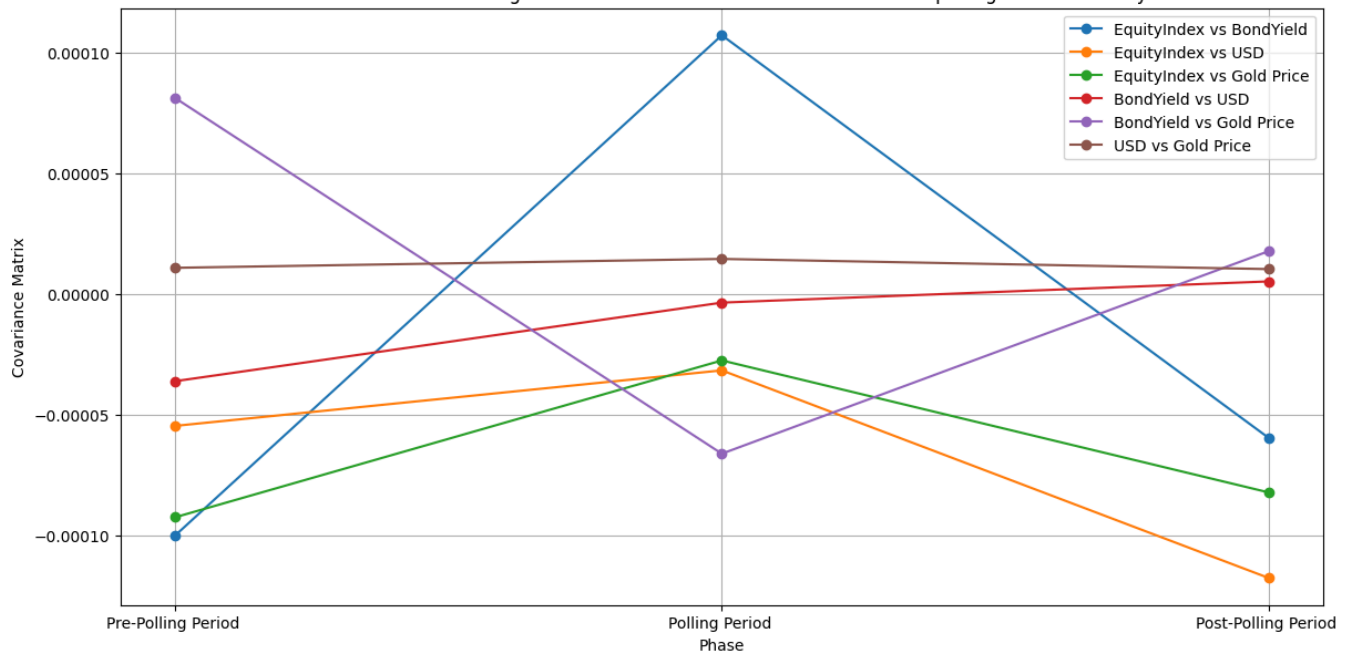
	Phase
EquityIndex	Election Phase 15
BondYield	Election Phase 15
USD	Election Phase 15
Gold_Price	Election Phase 15
EquityIndex	Pre-Polling Period
BondYield	Pre-Polling Period
USD	Pre-Polling Period
Gold_Price	Pre-Polling Period
EquityIndex	Polling Period
BondYield	Polling Period
USD	Polling Period
Gold_Price	Polling Period
EquityIndex	Post-Polling Period
BondYield	Post-Polling Period
USD	Post-Polling Period
Gold_Price	Post-Polling Period

correlations Summary of the Election Phase 15 :

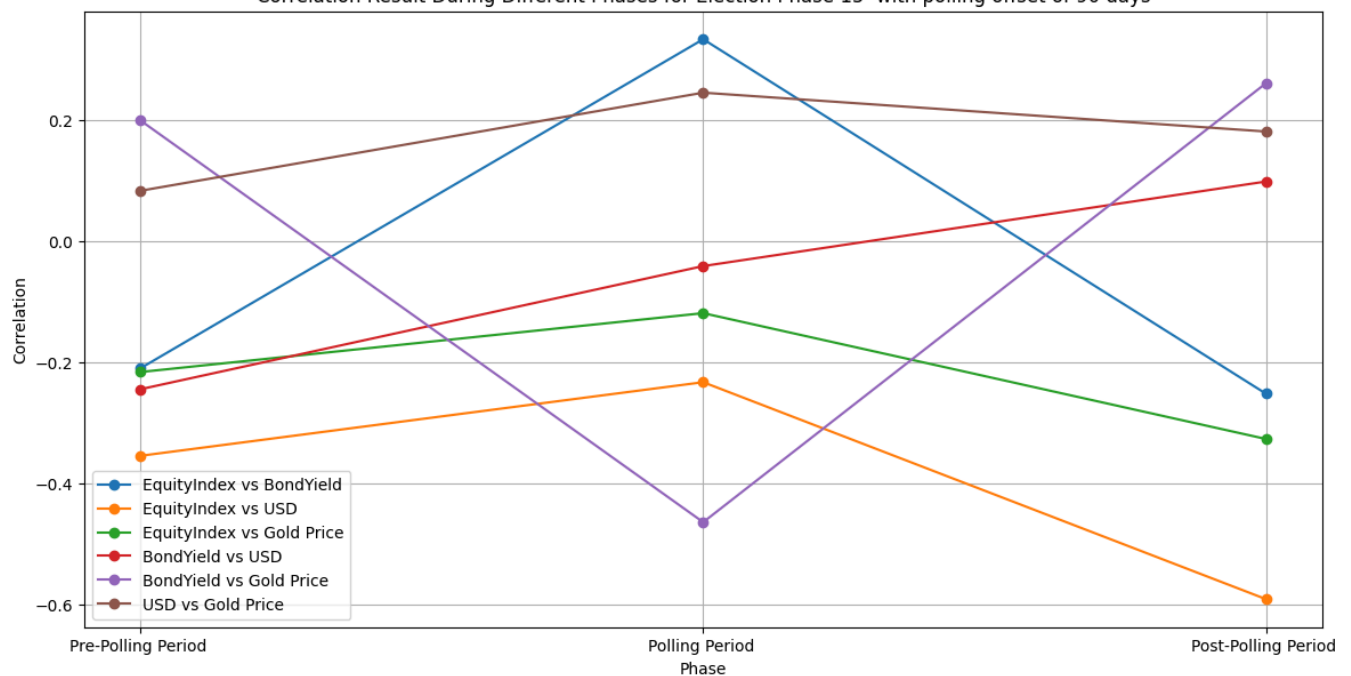
	EquityIndex	BondYield	USD	Gold_Price \
EquityIndex	1.000000	-0.126294	-0.464211	-0.217096
BondYield	-0.126294	1.000000	-0.110737	0.145431
USD	-0.464211	-0.110737	1.000000	0.124106
Gold_Price	-0.217096	0.145431	0.124106	1.000000
EquityIndex	1.000000	-0.210143	-0.354668	-0.216345
BondYield	-0.210143	1.000000	-0.244761	0.198902
USD	-0.354668	-0.244761	1.000000	0.082854
Gold_Price	-0.216345	0.198902	0.082854	1.000000
EquityIndex	1.000000	0.332990	-0.233133	-0.119185
BondYield	0.332990	1.000000	-0.041468	-0.464257
USD	-0.233133	-0.041468	1.000000	0.244795
Gold_Price	-0.119185	-0.464257	0.244795	1.000000
EquityIndex	1.000000	-0.252144	-0.591273	-0.326896
BondYield	-0.252144	1.000000	0.098119	0.260315
USD	-0.591273	0.098119	1.000000	0.180671
Gold_Price	-0.326896	0.260315	0.180671	1.000000

	Phase
EquityIndex	Election Phase 15
BondYield	Election Phase 15
USD	Election Phase 15
Gold_Price	Election Phase 15
EquityIndex	Pre-Polling Period
BondYield	Pre-Polling Period
USD	Pre-Polling Period
Gold_Price	Pre-Polling Period
EquityIndex	Polling Period
BondYield	Polling Period
USD	Polling Period
Gold_Price	Polling Period
EquityIndex	Post-Polling Period
BondYield	Post-Polling Period
USD	Post-Polling Period
Gold_Price	Post-Polling Period

Covariance Result During Different Phases for Election Phase 15 with polling offset of 90 days



Correlation Result During Different Phases for Election Phase 15 with polling offset of 90 days



```
1 statistical_levene_test(NameA, NameB, NameC, NameD, ElectionPhase, PollingPhaseBefore, PollingPhase, PollingPhaseAfter)
```

```

Levenes Test Result for Election Phase 15 with polling offset of 90 days with comparision of Pre-Polling vs Polling Period
Variable Levene's Test Statistic p-value
EquityIndex 0.013451 0.907997
BondYield 4.078604 0.047205
USD 0.147710 0.701882
Gold Price 4.519729 0.036985
Levenes Test Result for Election Phase 15 with polling offset of 90 days with comparision of Pre-Polling vs Post-Polling Period
Variable Levene's Test Statistic p-value
EquityIndex 0.016189 8.989743e-01
BondYield 38.655623 8.218182e-09
USD 0.013489 9.077411e-01
Gold Price 25.005616 2.049046e-06

```

```
1 statistical_boxm_test(NameA,NameB, NameC, NameD, ElectionPhase,PollingPhaseBefore,PollingPhase,PollingPhaseAfter)
```

```

Boxes M Test Result for Election Phase 15 with polling offset of 90 days with comparision of Pre-Polling vs Polling Period
Box's M statistic: 0.9650779419690956
P-value: 0.9998538244954509
Boxes M Test Result for Election Phase 15 with polling offset of 90 days with comparision of Pre-Polling vs Post-Polling Period
Box's M statistic: 0.9650779419690956
P-value: 0.9998538244954509

```

```
1 statistcal_fisher_test(NameA,NameB, NameC, NameD, ElectionPhase,PollingPhaseBefore,PollingPhase,PollingPhaseAfter)
```

```

Fisher's Z Test Result for Election Phase 15 with polling offset of 90 days with comparision of Pre-Polling vs Polling Period
Fisher's Z-Test: Z = EquityIndex BondYield USD Gold_Price
EquityIndex NaN 1.992866 0.474695 0.356412
BondYield 1.992866 NaN 0.742070 -2.508642
USD 0.474695 0.742070 NaN 0.594198
Gold_Price 0.356412 -2.508642 0.594198 NaN
P-value = 0 1 2 3
0 NaN 0.046276 0.635005 0.721532
1 0.046276 NaN 0.458045 0.012120
2 0.635005 0.458045 NaN 0.552380
3 0.721532 0.012120 0.552380 NaN
Fisher's Z Test Result for Election Phase 15 with polling offset of 90 days with comparision of Pre-Polling vs Post-Polling Period
Fisher's Z-Test: Z = EquityIndex BondYield USD Gold_Price
EquityIndex NaN -0.233486 -1.624860 -0.628853
BondYield -0.233486 NaN 1.832251 0.341215
USD -1.624860 1.832251 NaN 0.524172
Gold_Price -0.628853 0.341215 0.524172 NaN
P-value = 0 1 2 3
0 NaN 0.815384 0.104192 0.529445
1 0.815384 NaN 0.066914 0.732942
2 0.104192 0.066914 NaN 0.600159
3 0.529445 0.732942 0.600159 NaN
/usr/local/lib/python3.10/dist-packages/pandas/core/internals/blocks.py:366: RuntimeWarning: divide by zero encountered in arctanh
result = func(self.values, **kwargs)
/usr/local/lib/python3.10/dist-packages/pandas/core/internals/blocks.py:366: RuntimeWarning: divide by zero encountered in arctanh
result = func(self.values, **kwargs)

```

```
1 Start coding or generate with AI.
```

▼ Election Phase 15 with 180 days pre & post polling period

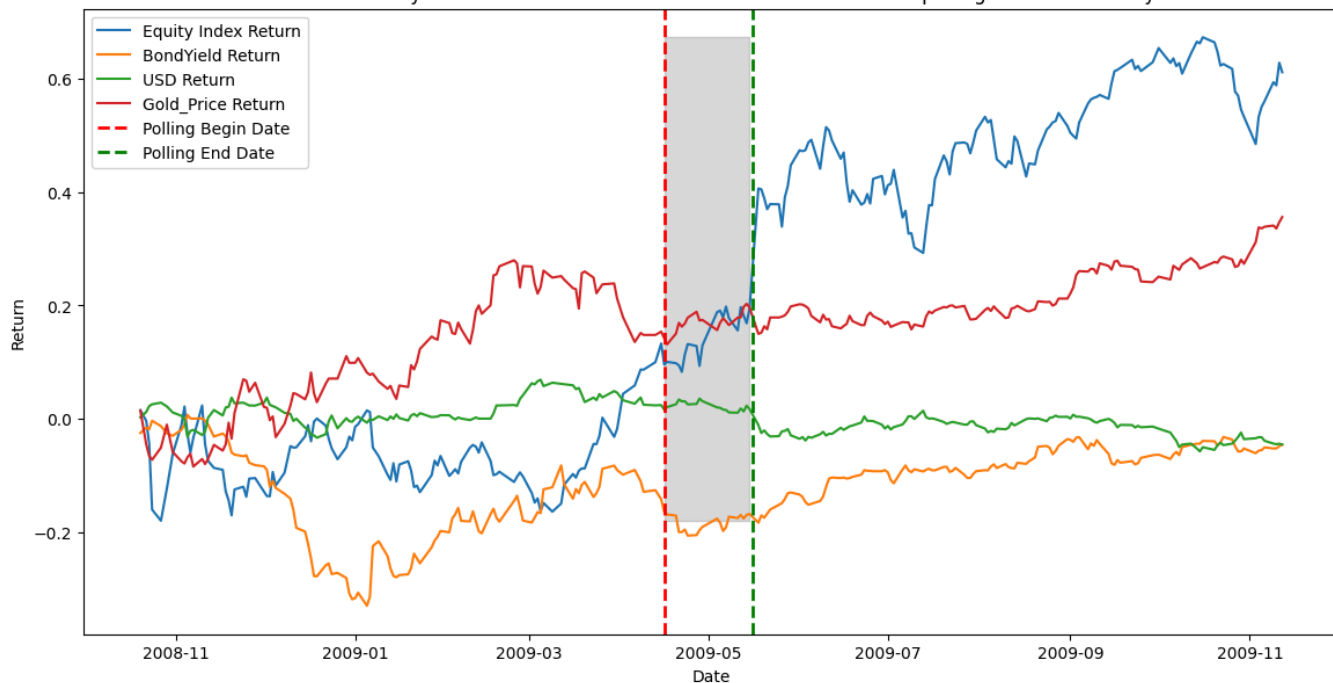
```

1 Offsetperioddays = 180
2 ElectionPhase, PollingPhase, PollingPhaseBefore, PollingPhaseAfter = ElectionPhaseA(df>Returns, PollingBegin, PollingEnd, Offsetperioddays)

```



Cumulative Daily Returns of Product Sets for Election Phase 15 with polling offset of 180 days



```

EquityIndex    250.0
BondYield      250.0
USD            250.0
Gold_Price     250.0
Name: count, dtype: float64
EquityIndex    109.0
BondYield      109.0
USD            109.0
Gold_Price     109.0
Name: count, dtype: float64
EquityIndex    20.0
BondYield      20.0
USD            20.0
Gold_Price     20.0
Name: count, dtype: float64
EquityIndex    121.0
BondYield      121.0
USD            121.0
Gold_Price     121.0
Name: count, dtype: float64
=====

```

```

1 statistics(NameA, NameB, NameC, NameD, ElectionPhase, PollingPhaseBefore, PollingPhase, PollingPhaseAfter)

```

Statistical Summary of the Election Phase 15 :

	Phase	Mean	Standard Deviation	Variance \
EquityIndex	Election Phase 15	0.002259	0.026684	0.000712
BondYield	Election Phase 15	-0.000044	0.016880	0.000285
USD	Election Phase 15	-0.000156	0.007333	0.000054
Gold_Price	Election Phase 15	0.001341	0.015715	0.000247
EquityIndex	Pre-Polling Period	0.001614	0.030523	0.000932
BondYield	Pre-Polling Period	-0.001132	0.023342	0.000545
USD	Pre-Polling Period	0.000262	0.008795	0.000077
Gold_Price	Pre-Polling Period	0.001549	0.021733	0.000472
EquityIndex	Polling Period	0.002870	0.022840	0.000522
BondYield	Polling Period	-0.001422	0.014124	0.000199
USD	Polling Period	-0.000315	0.005931	0.000035
Gold_Price	Polling Period	0.001867	0.010086	0.000102
EquityIndex	Post-Polling Period	0.002739	0.023574	0.000556
BondYield	Post-Polling Period	0.001163	0.008153	0.000066
USD	Post-Polling Period	-0.000507	0.006009	0.000036
Gold_Price	Post-Polling Period	0.001067	0.008429	0.000071

	Skewness	Kurtosis
EquityIndex	0.791632	8.246983
BondYield	1.818546	13.769205
USD	-0.119946	1.913793
Gold_Price	0.114775	2.268500
EquityIndex	-0.406024	1.504701
BondYield	1.746933	7.800084
USD	-0.004409	1.052701
Gold_Price	0.097685	0.141425
EquityIndex	0.426578	-0.595120
BondYield	-0.608758	0.218900
USD	0.288996	-0.903175
Gold_Price	-0.077109	-1.208689
EquityIndex	3.171446	23.407733
BondYield	-0.063967	0.803351
USD	-0.700339	2.451869
Gold_Price	-0.328587	4.022411

Covariance Summary of the Election Phase 15 :

	EquityIndex	BondYield	USD	Gold_Price \
EquityIndex	0.000712	-6.805859e-05	-7.302127e-05	-0.000020
BondYield	-0.000068	2.849479e-04	-6.881470e-06	0.000023
USD	-0.000073	-6.881470e-06	5.377251e-05	0.000007
Gold_Price	-0.000020	2.278396e-05	7.321339e-06	0.000247
EquityIndex	0.000932	-1.487864e-04	-8.379577e-05	0.000002
BondYield	-0.000149	5.448375e-04	-1.438136e-05	0.000048
USD	-0.000084	-1.438136e-05	7.735126e-05	0.000006
Gold_Price	0.000002	4.799966e-05	6.352939e-06	0.000472
EquityIndex	0.000522	1.074180e-04	-3.158033e-05	-0.000027
BondYield	0.000107	1.994893e-04	-3.473746e-06	-0.000066
USD	-0.000032	-3.473746e-06	3.517640e-05	0.000015
Gold_Price	-0.000027	-6.613699e-05	1.464379e-05	0.000102
EquityIndex	0.000556	-2.540331e-05	-7.067183e-05	-0.000039
BondYield	-0.000025	6.646643e-05	1.759628e-08	0.000015
USD	-0.000071	1.759628e-08	3.610529e-05	0.000007
Gold_Price	-0.000039	1.520906e-05	6.993458e-06	0.000071

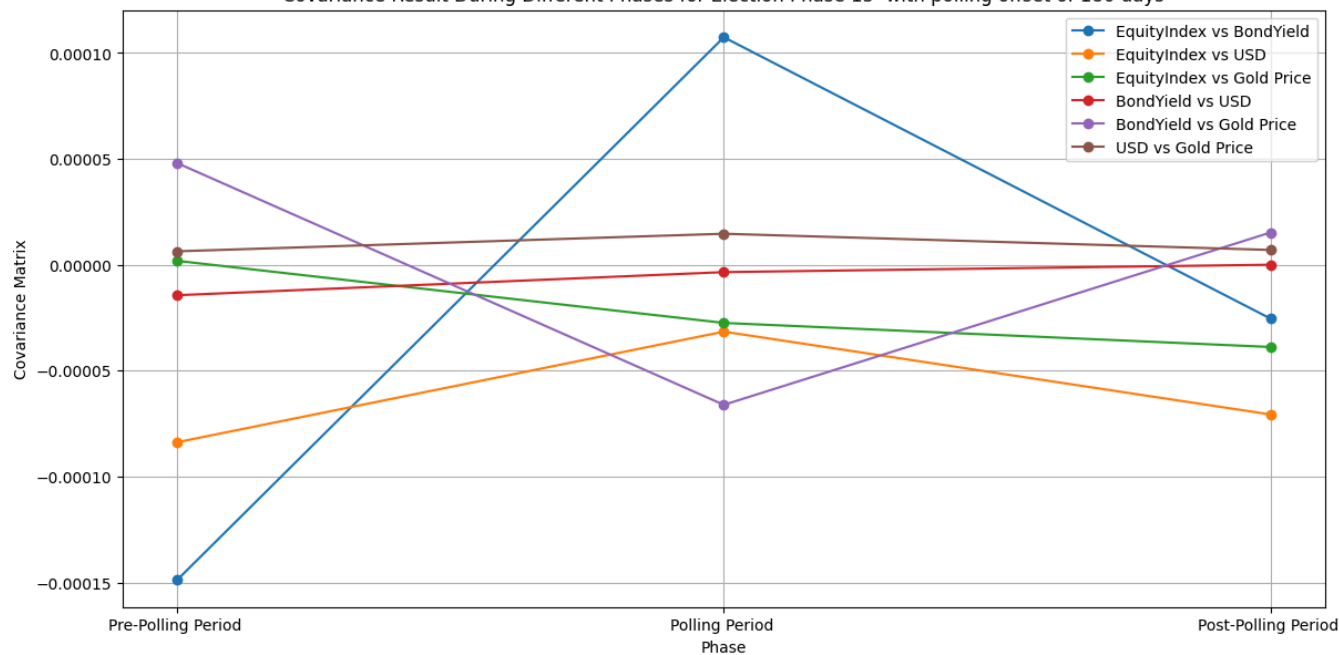
	Phase
EquityIndex	Election Phase 15
BondYield	Election Phase 15
USD	Election Phase 15
Gold_Price	Election Phase 15
EquityIndex	Pre-Polling Period
BondYield	Pre-Polling Period
USD	Pre-Polling Period
Gold_Price	Pre-Polling Period
EquityIndex	Polling Period
BondYield	Polling Period
USD	Polling Period
Gold_Price	Polling Period
EquityIndex	Post-Polling Period
BondYield	Post-Polling Period
USD	Post-Polling Period
Gold_Price	Post-Polling Period

correlations Summary of the Election Phase 15 :

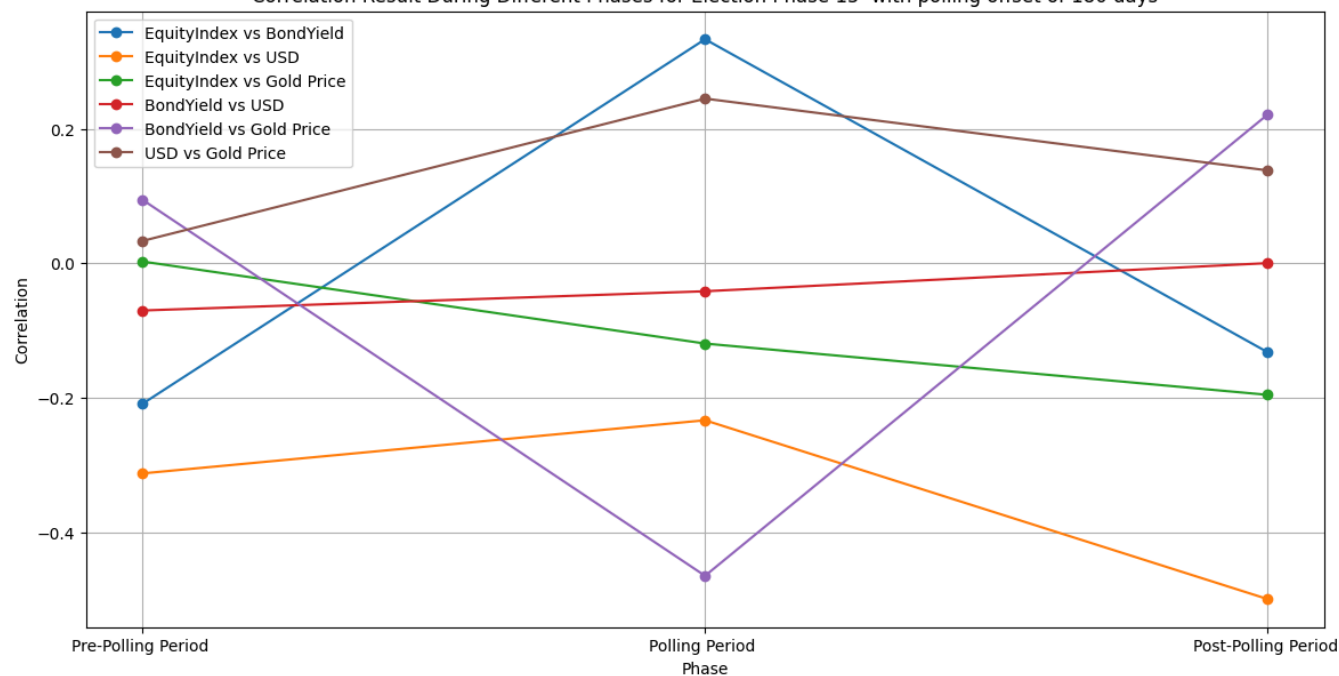
	EquityIndex	BondYield	USD	Gold_Price \
EquityIndex	1.000000	-0.151093	-0.373176	-0.047948
BondYield	-0.151093	1.000000	-0.055593	0.085890
USD	-0.373176	-0.055593	1.000000	0.063534
Gold_Price	-0.047948	0.085890	0.063534	1.000000
EquityIndex	1.000000	-0.208835	-0.312149	0.002776
BondYield	-0.208835	1.000000	-0.070054	0.094620
USD	-0.312149	-0.070054	1.000000	0.033237
Gold_Price	0.002776	0.094620	0.033237	1.000000
EquityIndex	1.000000	0.332990	-0.233133	-0.119185
BondYield	0.332990	1.000000	-0.041468	-0.464257
USD	-0.233133	-0.041468	1.000000	0.244795
Gold_Price	-0.119185	-0.464257	0.244795	1.000000
EquityIndex	1.000000	-0.132175	-0.498908	-0.195396
BondYield	-0.132175	1.000000	0.000359	0.221310
USD	-0.498908	0.000359	1.000000	0.138072
Gold_Price	-0.195396	0.221310	0.138072	1.000000

	Phase
EquityIndex	Election Phase 15
BondYield	Election Phase 15
USD	Election Phase 15
Gold_Price	Election Phase 15
EquityIndex	Pre-Polling Period
BondYield	Pre-Polling Period
USD	Pre-Polling Period
Gold_Price	Pre-Polling Period
EquityIndex	Polling Period
BondYield	Polling Period
USD	Polling Period
Gold_Price	Polling Period
EquityIndex	Post-Polling Period
BondYield	Post-Polling Period
USD	Post-Polling Period
Gold_Price	Post-Polling Period

Covariance Result During Different Phases for Election Phase 15 with polling offset of 180 days



Correlation Result During Different Phases for Election Phase 15 with polling offset of 180 days



```
1 statistical_levene_test(NameA,NameB, NameC, NameD, ElectionPhase,PollingPhaseBefore,PollingPhase,PollingPhaseAfter)
```

```

Levenes Test Result for Election Phase 15 with polling offset of 180 days with comparision of Pre-Polling vs Polling Period
Variable Levene's Test Statistic p-value
EquityIndex 1.603313 0.207752
BondYield 2.455356 0.119613
USD 2.001326 0.159609
Gold Price 6.448993 0.012308
Levenes Test Result for Election Phase 15 with polling offset of 180 days with comparision of Pre-Polling vs Post-Polling Period
Variable Levene's Test Statistic p-value
EquityIndex 13.207170 3.446212e-04
BondYield 42.114671 5.302112e-10
USD 9.508831 2.297105e-03
Gold Price 58.551080 5.543722e-13

1 statistical_boxm_test(NameA,NameB, NameC, NameD, ElectionPhase,PollingPhaseBefore,PollingPhase,PollingPhaseAfter)

Boxes M Test Result for Election Phase 15 with polling offset of 180 days with comparision of Pre-Polling vs Polling Period
Box's M statistic: 1.2696789818286338
P-value: 0.9994916282878749
Boxes M Test Result for Election Phase 15 with polling offset of 180 days with comparision of Pre-Polling vs Post-Polling Period
Box's M statistic: 1.2696789818286338
P-value: 0.9994916282878749

1 statistical_fisher_test(NameA,NameB, NameC, NameD, ElectionPhase,PollingPhaseBefore,PollingPhase,PollingPhaseAfter)

Fisher's Z Test Result for Election Phase 15 with polling offset of 180 days with comparision of Pre-Polling vs Polling Period
Fisher's Z-Test: Z = EquityIndex BondYield USD Gold_Price
EquityIndex NaN 2.136326 0.326968 -0.468996
BondYield 2.136326 NaN 0.109764 -2.287476
USD 0.326968 0.109764 NaN 0.829128
Gold_Price -0.468996 -2.287476 0.829128 NaN
P-value = 0 1 2 3
0 NaN 0.032653 0.743692 0.639073
1 0.032653 NaN 0.912596 0.022168
2 0.743692 0.912596 NaN 0.407032
3 0.639073 0.022168 0.407032 NaN
Fisher's Z Test Result for Election Phase 15 with polling offset of 180 days with comparision of Pre-Polling vs Post-Polling Period
Fisher's Z-Test: Z = EquityIndex BondYield USD Gold_Price
EquityIndex NaN 0.590333 -1.680778 -1.499878
BondYield 0.590333 NaN 0.527026 0.972394
USD -1.680778 0.527026 NaN 0.789928
Gold_Price -1.499878 0.972394 0.789928 NaN
P-value = 0 1 2 3
0 NaN 0.554967 0.092806 0.133646
1 0.554967 NaN 0.598175 0.330855
2 0.092806 0.598175 NaN 0.429570
3 0.133646 0.330855 0.429570 NaN
/usr/local/lib/python3.10/dist-packages/pandas/core/internals/blocks.py:366: RuntimeWarning: divide by zero encountered in arctanh
result = func(self.values, **kwargs)
/usr/local/lib/python3.10/dist-packages/pandas/core/internals/blocks.py:366: RuntimeWarning: divide by zero encountered in arctanh
result = func(self.values, **kwargs)

```

▼ Election Phase 15 with 365 days pre & post polling period

```

1 Offsetperioddays = 365
2 ElectionPhase, PollingPhase, PollingPhaseBefore, PollingPhaseAfter = ElectionPhaseA(df>Returns, PollingBegin, PollingEnd, Offsetperioddays

```




Cumulative Daily Returns of Product Sets for Election Phase 15 with polling offset of 365 days



```

EquityIndex    493.0
BondYield      493.0
USD            493.0
Gold_Price     493.0
Name: count, dtype: float64
EquityIndex    232.0
BondYield      232.0
USD            232.0
Gold_Price     232.0
Name: count, dtype: float64
EquityIndex    20.0
BondYield      20.0
USD            20.0
Gold_Price     20.0
Name: count, dtype: float64
EquityIndex    241.0
BondYield      241.0
USD            241.0
Gold_Price     241.0
Name: count, dtype: float64
=====

```

```
1 statistics(NameA,NameB, NameC, Named, ElectionPhase,PollingPhaseBefore,PollingPhase,PollingPhaseAfter)
```

Statistical Summary of the Election Phase 15 :

	Phase	Mean	Standard Deviation	Variance \
EquityIndex	Election Phase 15	0.000351	0.023099	0.000534
BondYield	Election Phase 15	-0.000043	0.013646	0.000186
USD	Election Phase 15	0.000267	0.006499	0.000042
Gold_Price	Election Phase 15	0.000960	0.016288	0.000265
EquityIndex	Pre-Polling Period	-0.001081	0.027201	0.000740
BondYield	Pre-Polling Period	-0.000673	0.017763	0.000316
USD	Pre-Polling Period	0.000985	0.007600	0.000058
Gold_Price	Pre-Polling Period	0.000979	0.021461	0.000461
EquityIndex	Polling Period	0.002870	0.022840	0.000522
BondYield	Polling Period	-0.001422	0.014124	0.000199
USD	Polling Period	-0.000315	0.005931	0.000035
Gold_Price	Polling Period	0.001867	0.010086	0.000102
EquityIndex	Post-Polling Period	0.001520	0.018343	0.000336
BondYield	Post-Polling Period	0.000678	0.007821	0.000061
USD	Post-Polling Period	-0.000377	0.005223	0.000027
Gold_Price	Post-Polling Period	0.000865	0.009614	0.000092

	Skewness	Kurtosis
EquityIndex	0.701140	8.330455
BondYield	1.652397	17.764694
USD	-0.113058	2.008910
Gold_Price	-0.059804	3.194284
EquityIndex	-0.140395	1.273512
BondYield	1.838838	12.093479
USD	-0.116946	1.258734
Gold_Price	-0.040954	1.179561
EquityIndex	0.426578	-0.595120
BondYield	-0.608758	0.218900
USD	0.288996	-0.903175
Gold_Price	-0.077109	-1.208689
EquityIndex	3.504322	34.023341
BondYield	-1.382912	9.952938
USD	-0.571893	2.631267
Gold_Price	-0.176343	1.796144

Covariance Summary of the Election Phase 15 :

	EquityIndex	BondYield	USD	Gold_Price \
EquityIndex	0.000534	-3.572367e-05	-5.492628e-05	-5.198684e-05
BondYield	-0.000036	1.862120e-04	-4.525386e-06	2.151630e-05
USD	-0.000055	-4.525386e-06	4.224154e-05	8.762100e-06
Gold_Price	-0.000052	2.151630e-05	8.762100e-06	2.653004e-04
EquityIndex	0.000740	-7.479685e-05	-6.417275e-05	-9.395880e-05
BondYield	-0.000075	3.155350e-04	-8.954636e-06	4.461869e-05
USD	-0.000064	-8.954636e-06	5.775662e-05	1.802130e-05
Gold_Price	-0.000094	4.461869e-05	1.802130e-05	4.605797e-04
EquityIndex	0.000522	1.074180e-04	-3.158033e-05	-2.745579e-05
BondYield	0.000107	1.994893e-04	-3.473746e-06	-6.613699e-05
USD	-0.000032	-3.473746e-06	3.517640e-05	1.464379e-05
Gold_Price	-0.000027	-6.613699e-05	1.464379e-05	1.017306e-04
EquityIndex	0.000336	-1.117453e-05	-4.646084e-05	-1.401667e-05
BondYield	-0.000011	6.117490e-05	4.533313e-07	6.583307e-06
USD	-0.000046	4.533313e-07	2.727690e-05	-5.730669e-07
Gold_Price	-0.000014	6.583307e-06	-5.730669e-07	9.242620e-05

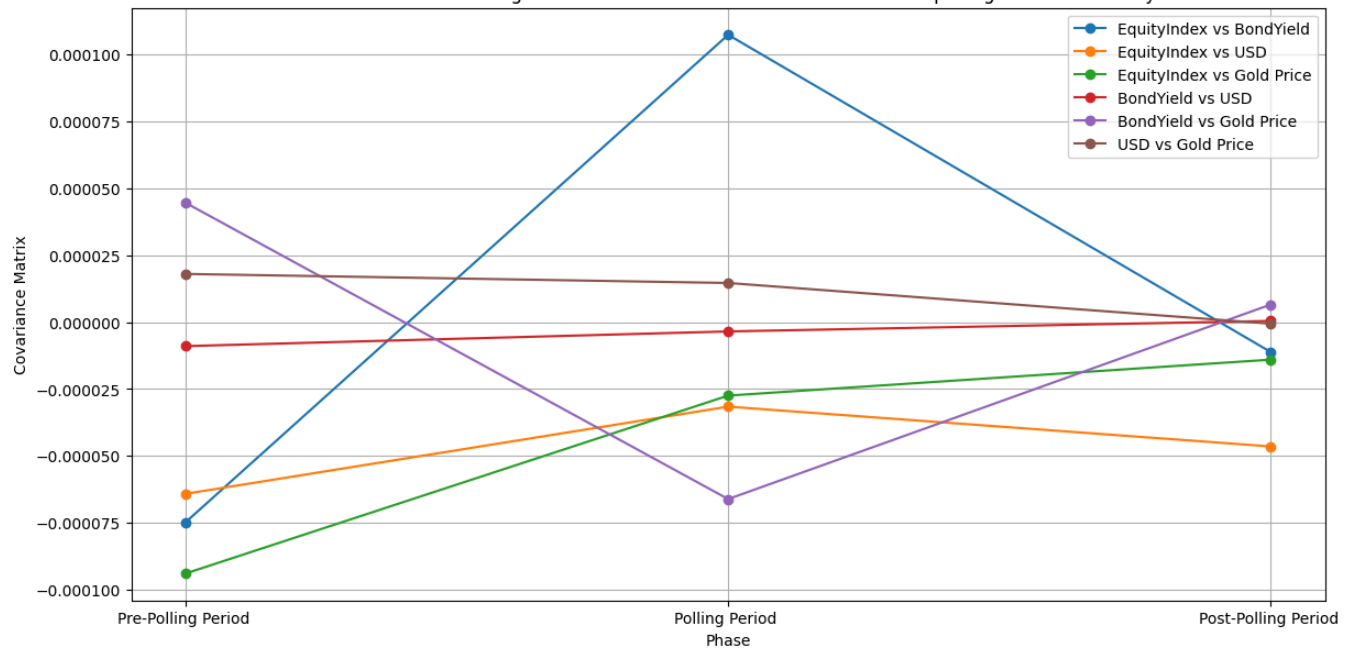
	Phase
EquityIndex	Election Phase 15
BondYield	Election Phase 15
USD	Election Phase 15
Gold_Price	Election Phase 15
EquityIndex	Pre-Polling Period
BondYield	Pre-Polling Period
USD	Pre-Polling Period
Gold_Price	Pre-Polling Period
EquityIndex	Polling Period
BondYield	Polling Period
USD	Polling Period
Gold_Price	Polling Period
EquityIndex	Post-Polling Period
BondYield	Post-Polling Period
USD	Post-Polling Period
Gold_Price	Post-Polling Period

correlations Summary of the Election Phase 15 :

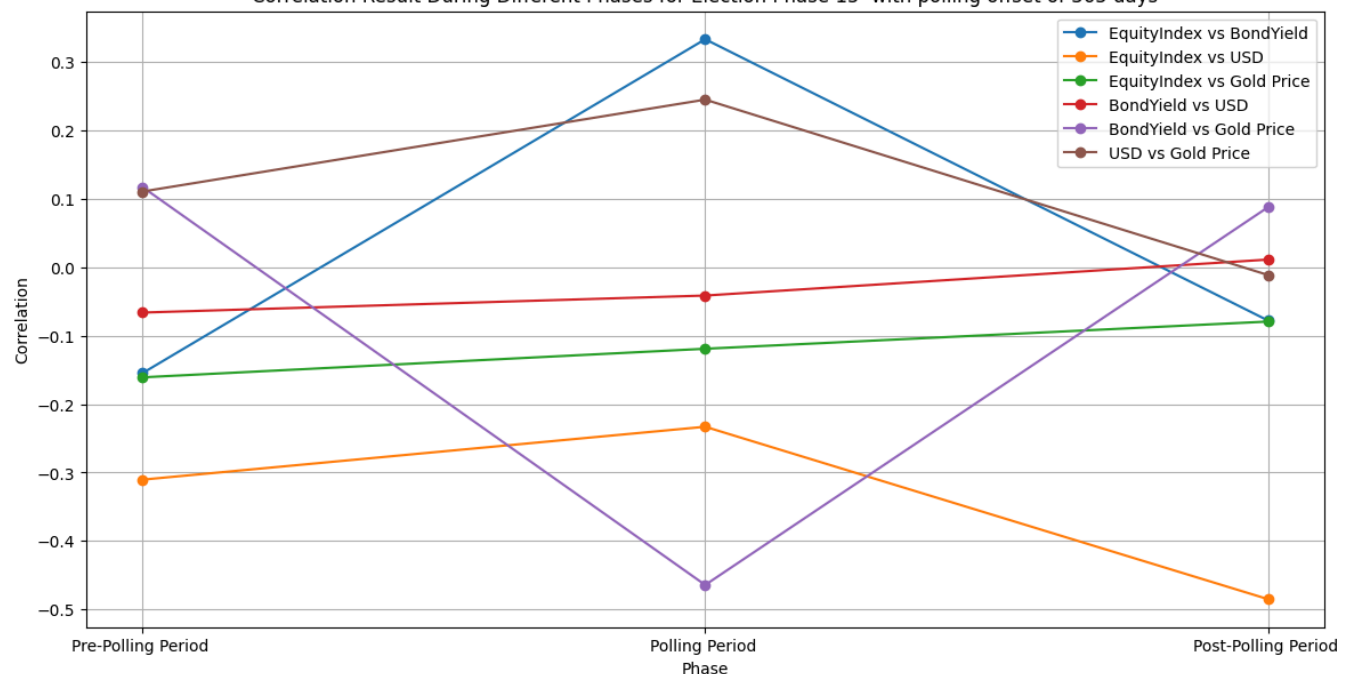
	EquityIndex	BondYield	USD	Gold_Price \
EquityIndex	1.000000	-0.113334	-0.365863	-0.138176
BondYield	-0.113334	1.000000	-0.051025	0.096804
USD	-0.365863	-0.051025	1.000000	0.082769
Gold_Price	-0.138176	0.096804	0.082769	1.000000
EquityIndex	1.000000	-0.154803	-0.310434	-0.160955
BondYield	-0.154803	1.000000	-0.066332	0.117042
USD	-0.310434	-0.066332	1.000000	0.110492
Gold_Price	-0.160955	0.117042	0.110492	1.000000
EquityIndex	1.000000	0.332990	-0.233133	-0.119185
BondYield	0.332990	1.000000	-0.041468	-0.464257
USD	-0.233133	-0.041468	1.000000	0.244795
Gold_Price	-0.119185	-0.464257	0.244795	1.000000
EquityIndex	1.000000	-0.077887	-0.484964	-0.079482
BondYield	-0.077887	1.000000	0.011098	0.087551
USD	-0.484964	0.011098	1.000000	-0.011413
Gold_Price	-0.079482	0.087551	-0.011413	1.000000

	Phase
EquityIndex	Election Phase 15
BondYield	Election Phase 15
USD	Election Phase 15
Gold_Price	Election Phase 15
EquityIndex	Pre-Polling Period
BondYield	Pre-Polling Period
USD	Pre-Polling Period
Gold_Price	Pre-Polling Period
EquityIndex	Polling Period
BondYield	Polling Period
USD	Polling Period
Gold_Price	Polling Period
EquityIndex	Post-Polling Period
BondYield	Post-Polling Period
USD	Post-Polling Period
Gold_Price	Post-Polling Period

Covariance Result During Different Phases for Election Phase 15 with polling offset of 365 days



Correlation Result During Different Phases for Election Phase 15 with polling offset of 365 days



```
1 statistical_levene_test(NameA,NameB, NameC, NameD, ElectionPhase,PollingPhaseBefore,PollingPhase,PollingPhaseAfter)
```

```

↳ Levenes Test Result for Election Phase 15 with polling offset of 365 days with comparision of Pre-Polling vs Polling Period
Variable Levene's Test Statistic p-value
EquityIndex 0.594084 0.441572
BondYield 0.289586 0.590965
USD 0.746817 0.388314
Gold Price 5.144473 0.024174
Levenes Test Result for Election Phase 15 with polling offset of 365 days with comparision of Pre-Polling vs Post-Polling Period
Variable Levene's Test Statistic p-value
EquityIndex 43.648021 1.064923e-10
BondYield 53.287061 1.235364e-12
USD 19.672329 1.145375e-05
Gold Price 75.376050 6.410727e-17

1 statistical_boxm_test(NameA,NameB, NameC, NameD, ElectionPhase,PollingPhaseBefore,PollingPhase,PollingPhaseAfter)

↳ Box's M Test Result for Election Phase 15 with polling offset of 365 days with comparision of Pre-Polling vs Polling Period
Box's M statistic: 0.9408002708438878
P-value: 0.9998700156243953
Box's M Test Result for Election Phase 15 with polling offset of 365 days with comparision of Pre-Polling vs Post-Polling Period
Box's M statistic: 0.9408002708438878
P-value: 0.9998700156243953

1 statistical_fisher_test(NameA,NameB, NameC, NameD, ElectionPhase,PollingPhaseBefore,PollingPhase,PollingPhaseAfter)

↳ Fisher's Z Test Result for Election Phase 15 with polling offset of 365 days with comparision of Pre-Polling vs Polling Period
Fisher's Z-Test: Z = EquityIndex BondYield USD Gold_Price
EquityIndex NaN 1.997973 0.332269 0.169517
BondYield 1.997973 NaN 0.099205 -2.467632
USD 0.332269 0.099205 NaN 0.552647
Gold_Price 0.169517 -2.467632 0.552647 NaN
P-value = 0 1 2 3
0 NaN 0.045720 0.739686 0.865390
1 0.045720 NaN 0.920976 0.013601
2 0.739686 0.920976 NaN 0.580505
3 0.865390 0.013601 0.580505 NaN
Fisher's Z Test Result for Election Phase 15 with polling offset of 365 days with comparision of Pre-Polling vs Post-Polling Period
Fisher's Z-Test: Z = EquityIndex BondYield USD Gold_Price
EquityIndex NaN 0.842777 -2.251684 0.893598
BondYield 0.842777 NaN 0.837538 -0.321987
USD -2.251684 0.837538 NaN -1.321857
Gold_Price 0.893598 -0.321987 -1.321857 NaN
P-value = 0 1 2 3
0 NaN 0.399353 0.024342 0.371537
1 0.399353 NaN 0.402290 0.747462
2 0.024342 0.402290 NaN 0.186216
3 0.371537 0.747462 0.186216 NaN
/usr/local/lib/python3.10/dist-packages/pandas/core/internals/blocks.py:366: RuntimeWarning: divide by zero encountered in arctanh
result = func(self.values, **kwargs)
/usr/local/lib/python3.10/dist-packages/pandas/core/internals/blocks.py:366: RuntimeWarning: divide by zero encountered in arctanh
result = func(self.values, **kwargs)

```

```
1 Start coding or generate with AI.
```

```
1 Start coding or generate with AI.
```

▼ Election Phase 16

```

1 NameA = 'Election Phase 16 '
2 NameB = "Pre-Polling Period "
3 NameC = "Polling Period "
4 NameD = "Post-Polling Period "
5 PollingBegin = pd.to_datetime('2014-04-07')
6 PollingEnd = pd.to_datetime('2014-05-16')

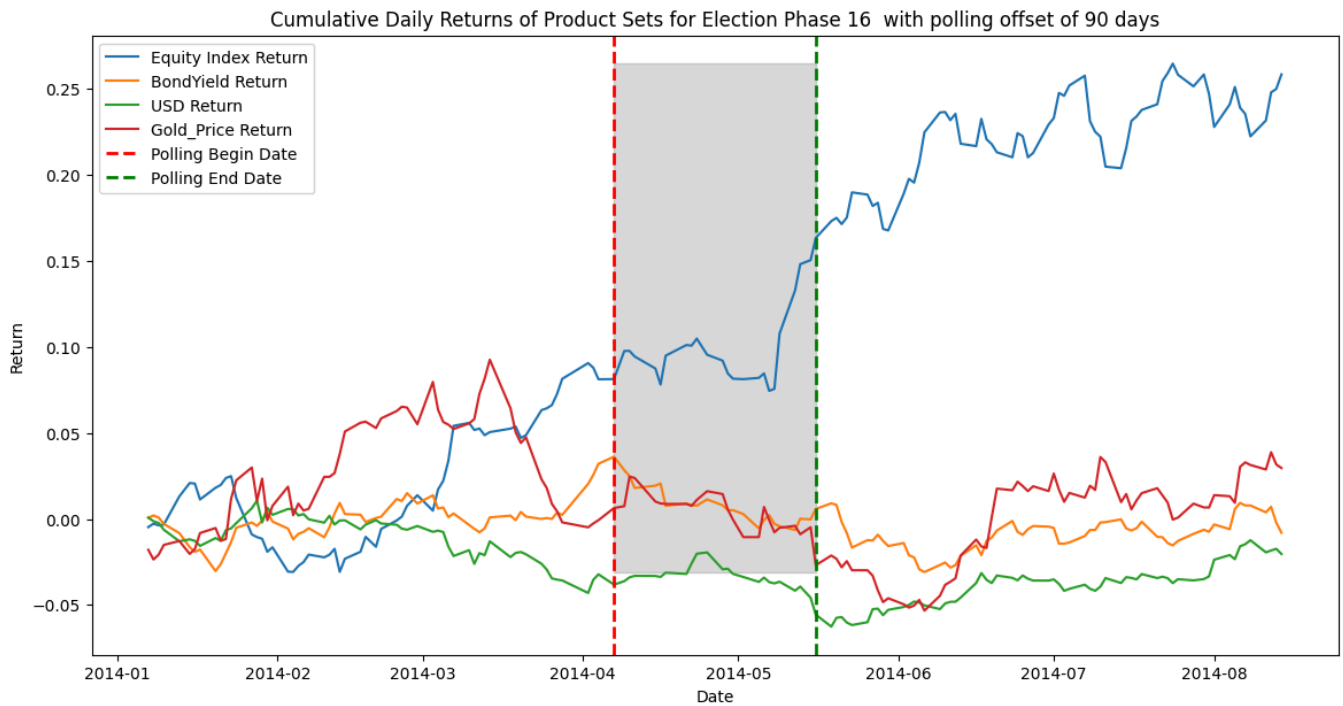
```

▼ Election Phase 16 with 90 days pre & post polling period

```

1 Offsetperioddays = 90
2 ElectionPhase, PollingPhase, PollingPhaseBefore, PollingPhaseAfter = ElectionPhaseA(df>Returns, PollingBegin, PollingEnd, Offsetperioddays

```



```

EquityIndex    145.0
BondYield      145.0
USD            145.0
Gold_Price     145.0
Name: count, dtype: float64
EquityIndex    58.0
BondYield      58.0
USD            58.0
Gold_Price     58.0
Name: count, dtype: float64
EquityIndex    24.0
BondYield      24.0
USD            24.0
Gold_Price     24.0
Name: count, dtype: float64
EquityIndex    63.0
BondYield      63.0
USD            63.0
Gold_Price     63.0
Name: count, dtype: float64
=====

```

```
1 statistics(NameA,NameB, NameC, Named, ElectionPhase,PollingPhaseBefore,PollingPhase,PollingPhaseAfter)
```

Statistical Summary of the Election Phase 16 :

	Phase	Mean	Standard Deviation	Variance \
EquityIndex	Election Phase 16	0.001621	0.008357	0.000070
BondYield	Election Phase 16	-0.000043	0.004962	0.000025
USD	Election Phase 16	-0.000133	0.004143	0.000017
Gold_Price	Election Phase 16	0.000242	0.009093	0.000083
EquityIndex	Pre-Polling Period	0.001375	0.007465	0.000056
BondYield	Pre-Polling Period	0.000559	0.005382	0.000029
USD	Pre-Polling Period	-0.000553	0.004629	0.000021
Gold_Price	Pre-Polling Period	0.000045	0.010726	0.000115
EquityIndex	Polling Period	0.003105	0.010124	0.000102
BondYield	Polling Period	-0.001064	0.004753	0.000023
USD	Polling Period	-0.001011	0.004327	0.000019
Gold_Price	Polling Period	-0.001070	0.008633	0.000075
EquityIndex	Post-Polling Period	0.001283	0.008482	0.000072
BondYield	Post-Polling Period	-0.000208	0.004626	0.000021
USD	Post-Polling Period	0.000588	0.003497	0.000012
Gold_Price	Post-Polling Period	0.000924	0.007580	0.000057

Skewness Kurtosis

EquityIndex	0.085717	0.612183
BondYield	0.043723	0.496370
USD	-0.141834	0.332495
Gold_Price	-0.163638	0.825149
EquityIndex	-0.382763	0.842775
BondYield	0.283583	0.707763
USD	-0.078059	-0.123259
Gold_Price	-0.328859	0.191995
EquityIndex	1.038476	0.471672
BondYield	-0.487381	-0.073448
USD	-0.566086	-0.149657
Gold_Price	0.036915	0.878883
EquityIndex	-0.313798	-0.329185
BondYield	-0.209156	-0.240584
USD	0.400421	0.431361
Gold_Price	0.303399	1.129222

Covariance Summary of the Election Phase 16 :

	EquityIndex	BondYield	USD	Gold_Price \
EquityIndex	0.000070	-1.120504e-05	-8.170016e-06	-1.427129e-05
BondYield	-0.000011	2.462200e-05	6.521923e-07	7.365134e-06
USD	-0.000008	6.521923e-07	1.716358e-05	6.406992e-06
Gold_Price	-0.000014	7.365134e-06	6.406992e-06	8.268992e-05
EquityIndex	0.000056	-1.028763e-05	-1.324494e-05	-2.079416e-05
BondYield	-0.000010	2.897039e-05	5.633929e-07	7.136722e-06
USD	-0.000013	5.633929e-07	2.142481e-05	9.339140e-07
Gold_Price	-0.000021	7.136722e-06	9.339140e-07	1.150561e-04
EquityIndex	0.000102	-8.087342e-06	1.637214e-06	6.415547e-06
BondYield	-0.000008	2.259199e-05	-3.562055e-06	-3.251426e-06
USD	0.000002	-3.562055e-06	1.872676e-05	1.289580e-05
Gold_Price	0.000006	-3.251426e-06	1.289580e-05	7.452775e-05
EquityIndex	0.000072	-1.289805e-05	-6.750934e-06	-1.546683e-05
BondYield	-0.000013	2.140093e-05	2.328892e-06	1.145839e-05
USD	-0.000007	2.328892e-06	1.222781e-05	8.214852e-06
Gold_Price	-0.000015	1.145839e-05	8.214852e-06	5.745368e-05

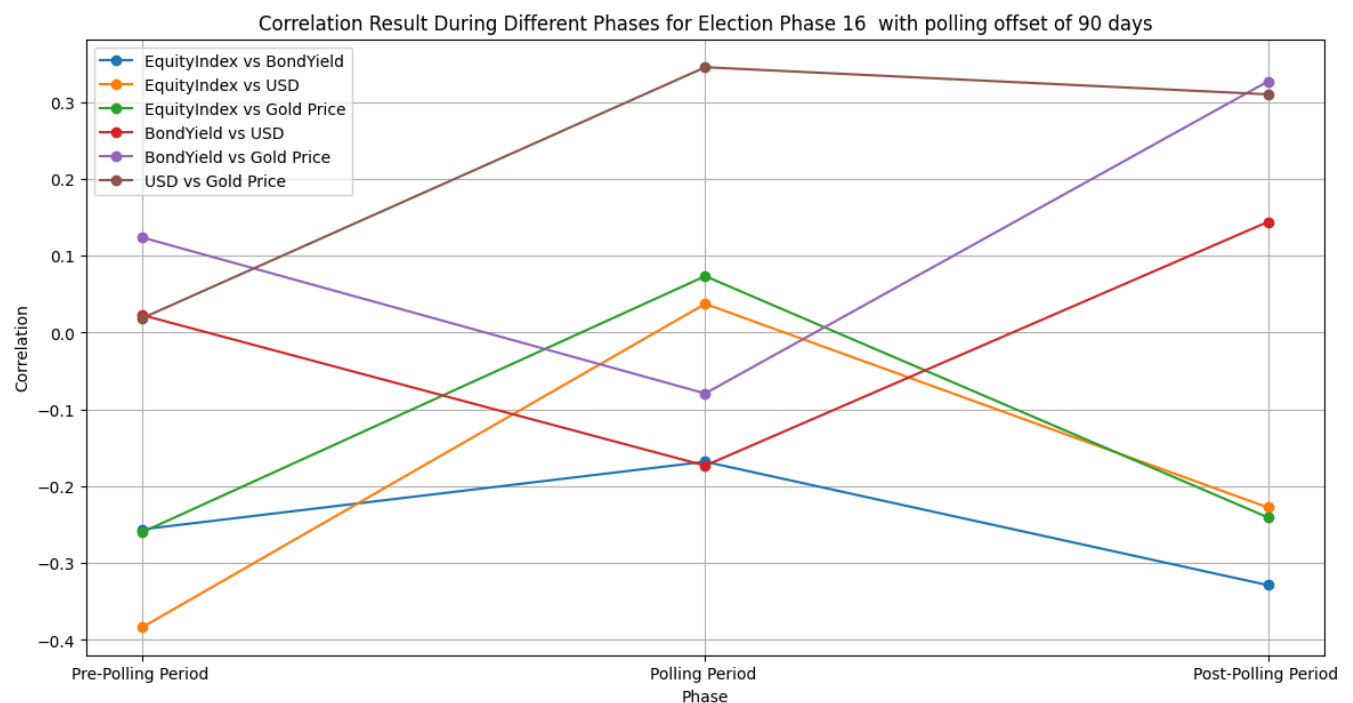
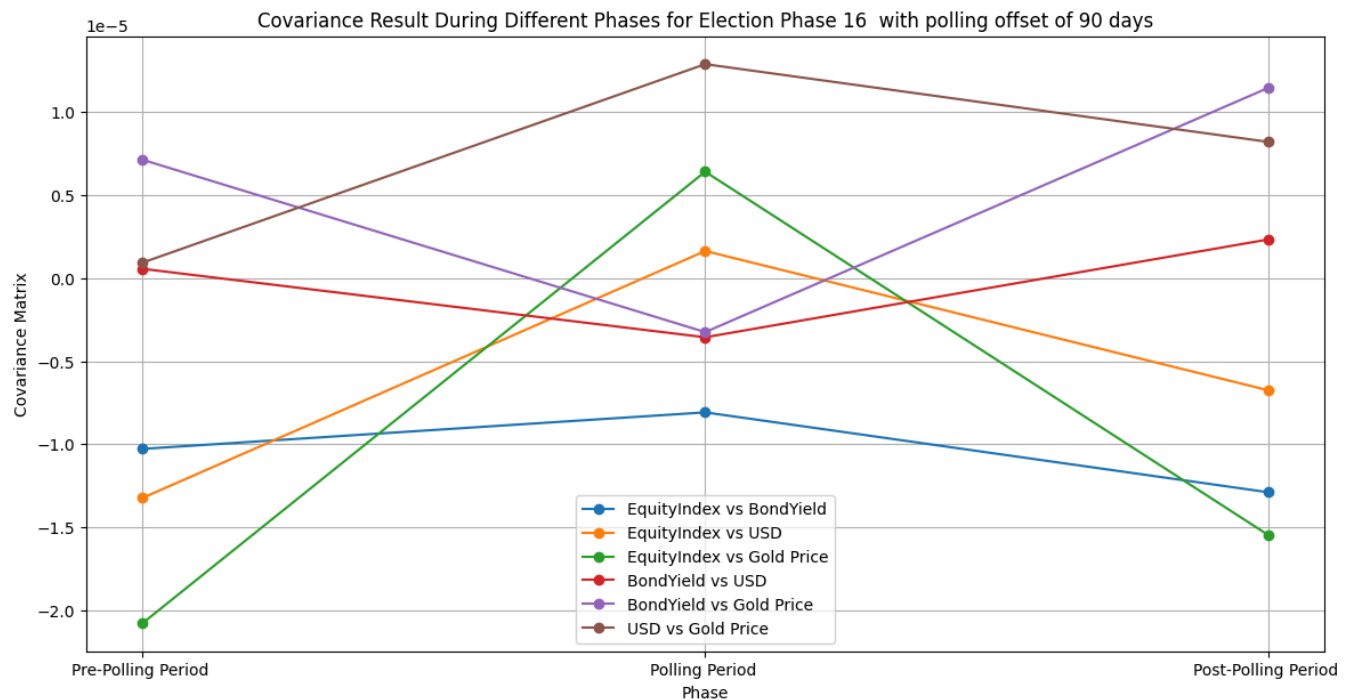
Phase

EquityIndex	Election Phase 16
BondYield	Election Phase 16
USD	Election Phase 16
Gold_Price	Election Phase 16
EquityIndex	Pre-Polling Period
BondYield	Pre-Polling Period
USD	Pre-Polling Period
Gold_Price	Pre-Polling Period
EquityIndex	Polling Period
BondYield	Polling Period
USD	Polling Period
Gold_Price	Polling Period
EquityIndex	Post-Polling Period
BondYield	Post-Polling Period
USD	Post-Polling Period
Gold_Price	Post-Polling Period

correlations Summary of the Election Phase 16 :

	EquityIndex	BondYield	USD	Gold_Price \
EquityIndex	1.000000	-0.270199	-0.235967	-0.187789
BondYield	-0.270199	1.000000	0.031726	0.163227
USD	-0.235967	0.031726	1.000000	0.170069
Gold_Price	-0.187789	0.163227	0.170069	1.000000
EquityIndex	1.000000	-0.256051	-0.383335	-0.259701
BondYield	-0.256051	1.000000	0.022614	0.123614
USD	-0.383335	0.022614	1.000000	0.018810
Gold_Price	-0.259701	0.123614	0.018810	1.000000
EquityIndex	1.000000	-0.168065	0.037370	0.073405
BondYield	-0.168065	1.000000	-0.173178	-0.079239
USD	0.037370	-0.173178	1.000000	0.345190
Gold_Price	0.073405	-0.079239	0.345190	1.000000
EquityIndex	1.000000	-0.328705	-0.227608	-0.240570
BondYield	-0.328705	1.000000	0.143966	0.326775
USD	-0.227608	0.143966	1.000000	0.309932
Gold_Price	-0.240570	0.326775	0.309932	1.000000

	Phase
EquityIndex	Election Phase 16
BondYield	Election Phase 16
USD	Election Phase 16
Gold_Price	Election Phase 16
EquityIndex	Pre-Polling Period
BondYield	Pre-Polling Period
USD	Pre-Polling Period
Gold_Price	Pre-Polling Period
EquityIndex	Polling Period
BondYield	Polling Period
USD	Polling Period
Gold_Price	Polling Period
EquityIndex	Post-Polling Period
BondYield	Post-Polling Period
USD	Post-Polling Period
Gold_Price	Post-Polling Period



```
1 statistical_levene_test(NameA,NameB, NameC, NameD, ElectionPhase,PollingPhaseBefore,PollingPhase,PollingPhaseAfter)
```

```

Levenes Test Result for Election Phase 16 with polling offset of 90 days with comparision of Pre-Polling vs Polling Period
Variable Levene's Test Statistic p-value
EquityIndex 1.649504 0.202733
BondYield 0.540613 0.464329
USD 0.202933 0.653582
Gold Price 1.440444 0.233609
Levenes Test Result for Election Phase 16 with polling offset of 90 days with comparision of Pre-Polling vs Post-Polling Period
Variable Levene's Test Statistic p-value
EquityIndex 2.338490 0.128866
BondYield 1.044129 0.308936
USD 3.682310 0.057388
Gold Price 4.097975 0.045174

```

```
1 statistical_boxm_test(NameA,NameB, NameC, NameD, ElectionPhase,PollingPhaseBefore,PollingPhase,PollingPhaseAfter)
```

```

Boxes M Test Result for Election Phase 16 with polling offset of 90 days with comparision of Pre-Polling vs Polling Period
Box's M statistic: 0.3868191152094496
P-value: 0.9999980796779413
Boxes M Test Result for Election Phase 16 with polling offset of 90 days with comparision of Pre-Polling vs Post-Polling Period
Box's M statistic: 0.3868191152094496
P-value: 0.9999980796779413

```

```
1 statistcal_fisher_test(NameA,NameB, NameC, NameD, ElectionPhase,PollingPhaseBefore,PollingPhase,PollingPhaseAfter)
```

```

Fisher's Z Test Result for Election Phase 16 with polling offset of 90 days with comparision of Pre-Polling vs Polling Period
Fisher's Z-Test: Z = EquityIndex BondYield USD Gold_Price
EquityIndex NaN 0.359440 1.720555 1.322818
BondYield 0.359440 NaN -0.770158 -0.793922
USD 1.720555 -0.770158 NaN 1.329971
Gold_Price 1.322818 -0.793922 1.329971 NaN
P-value = 0 1 2 3
0 NaN 0.719266 0.085332 0.185896
1 0.719266 NaN 0.441206 0.427241
2 0.085332 0.441206 NaN 0.183528
3 0.185896 0.427241 0.183528 NaN
Fisher's Z Test Result for Election Phase 16 with polling offset of 90 days with comparision of Pre-Polling vs Post-Polling Period
Fisher's Z-Test: Z = EquityIndex BondYield USD Gold_Price
EquityIndex NaN -0.425862 0.922972 0.109328
BondYield -0.425862 NaN 0.655435 1.151526
USD 0.922972 0.655435 NaN 1.615930
Gold_Price 0.109328 1.151526 1.615930 NaN
P-value = 0 1 2 3
0 NaN 0.670209 0.356022 0.912942
1 0.670209 NaN 0.512188 0.249516
2 0.356022 0.512188 NaN 0.106109
3 0.912942 0.249516 0.106109 NaN
/usr/local/lib/python3.10/dist-packages/pandas/core/internals/blocks.py:366: RuntimeWarning: divide by zero encountered in arctanh
result = func(self.values, **kwargs)
/usr/local/lib/python3.10/dist-packages/pandas/core/internals/blocks.py:366: RuntimeWarning: divide by zero encountered in arctanh
result = func(self.values, **kwargs)

```

```
1 Start coding or generate with AI.
```

▼ Election Phase 16 with 180 days pre & post polling period

```

1 Offsetperioddays = 180
2 ElectionPhase, PollingPhase, PollingPhaseBefore, PollingPhaseAfter = ElectionPhaseA(df>Returns, PollingBegin, PollingEnd, Offsetperioddays)

```