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<div align="center">Earnings Announcement Impact on Stock Price Across Industries</div>

Public companies release their financial results to the public to inform investors about the companies performance. These announcements can have a significant impact on the company's stock price. Due to the fact that industries often perform differently on the stock market, this project attempts to investigate the impact of earnings announcement surprises on stock prices across different industries. A thorough understanding of how earnings announcement release impact the price of a stock can help us to make informed investment decisions and minimize investment risk. Our question is: does a significant relationship exist across industries between their earnings announcements and stock price during a 2-week window? And does Q4 earnings impact industries differently?

To test our research question, if earnings announcements can have a significant impact on the price of stocks, we decided to collect data from five different industries: Energy, Real Estate, Technology, Retail, and Pharmaceutical. From these five industries, we chose three companies to employ our empirical test which includes t-tests, correlation tests, and regression analysis. These tests allowed us to analyze the linkage between earnings announcements and stock prices in different industries. The t-test is a comparison test that tells us the relationship between the mean stock prices before and after the earnings announcement. We use the t-test as we have collected small random samples from the statistical populations for all five sectors. Furthermore, the correlation test illustrates the solidity of the relationship between the two variables while also telling us whether they are positively or negatively correlated. Lastly, we used regression analysis to identify the strength of our independent variables in influencing our dependent variable, while also using the Durblin-Watson test to test if there were any significant autocorrelation between our two variables. It is also important to note that these tests were performed assuming certain conditions and limitations and that the results of these tests do not necessarily imply or predict future outcomes. Furthermore, it should be noted that there may be other factors that influence stock prices, such as macroeconomic conditions, trends in the industry, and the performance of the company.

The information about common stock prices was gathered from yahoo finance and the earnings announcement related information was collected from Alphavantage. The reason for this was due to the issues that we came across when we tried acquiring information on Yahoo thus, we used Alphavantage as a secondary yet reliable source. In order to use Alphavantage we had to use an API key which was provided with a free sign-up. Alphavantage provided us with sufficient information to perform the necessary analysis in our data collection. Using the Aplhavantage API also proved to be an efficient automation of our data collection and is an essential piece in making this program scalable. Since we were solely gathering data for Quarter four from ten years back, we made sure to include those requirements in the code, i.e. (checking the reported dates, as well as the fiscal months from January to March). We also increased the range to 1 week prior and 1 week after the earnings announcement to eliminate some of the day-of volatility that may have skewed our results had we used a shorter window. Looking at 2 weeks surrounding the earnings announcement allows us to calculate mean daily returns over the period and perform valuable tests. The results for this section were pretty successful. Hypothesis:

H_0 = Earnings surprise - Price Difference Before & After Announcement = 0

(Earning Announcement has no effect on stock price)

H_a = Earnings surprise - Price Difference Before & After Announcement $\neq$ 0

(Earning Announcement has an effect on stock price)

α = 0.05

Energy Sector

The stocks that we collected and analyzed for the energy sector are NextEra Energy (NEE), Exxon Mobil Corporation (XOM), and Chevron Corporation (CVX). Figure 7 shows the two-tail t-test resulted to have a t-statistic of 0.5534 and a p-value of 0.5821. As the p-value is greater than the alpha that we set, we failed to reject the null hypothesis and our sample did not provide enough evidence to draw the conclusion that the impact existed. According to the results of regression, the earnings surprise and the price change for the energy industry are inversely related. However, this relationship is not statistically significant due to a p-value greater than 0.05 see figure 6. The regression has a value of 1.677 for the Durbin-Watson statistic which indicates that autocorrelation is not a serious concern in the model. The relationship between

earnings surprises and stock price is not significant and can not be reliable for predicting the impact. The energy sector is a complex network of companies that includes various types of energy companies, such as primary sources, secondary sources of energy like electricity, and chemicals companies that refine oil and gas into specialty chemicals. This could be one of the contributing factors to these findings.

Pharmaceutical Sector

In this industry the stocks we researched were Abbvie Inc, Bristol-Myers Squibb Co, and Johnson & Johnson. The reasoning behind this selection was due to random sampling. The first step was finding the expected EPS and the actual EPS which we used python for. The results of all three companies consolidated data are shown below on figure eleven. Furthermore, most of the actual earnings are greater than the forecasted earnings(Figure 11). After gathering that information we then find the price difference a week before the announcement and a week after the announcement of each stock and we can see that there is a distinct pattern illustrating a surprising negative trend for the price difference before and after announcement (Figure 11). Moving on to the regression analysis (Figure 12) we can see a negative correlation between earnings announcement revelation and stock price difference. Moreover, R-square indicates that 18.5% of the variation of the price difference before and after the announcement is explained by the earnings variance. Also, the Durbin-Watson test indicates that there is no significant auto correlation between our two variables. Lastly, there is a positive skew and the measurements are more clustered towards the left, and the kurtosis of 3.7 tells us that this is close to a fat tail distribution. In conclusion, the pharmaceutical sector earnings announcement shows a negative correlation with price of stock.

Technology Sector

The stocks that were covered in the technology sector were Google, Apple, and Meta which are three of the largest technology companies in the world. The reasoning for this selection was simply due to curiosity. I wanted to inquire more information about any significant relationships in the top technology companies. My findings from collecting the EPS data were that there was no clear discernable pattern in the measured EPS and Prices before and after announcements. However Volatility remained extremely high ranging from numbers as low as (-0.82 to +11.73). Furthermore, from graphing Earning surprise against Price Diff and also many other series of

testing such as a regression analysis, there was no strong conclusive evidence that there is any relationship between earnings and stock price in the technology industry.

Retail Sector

For the retail industry, the companies we chose were Walmart(WMT), Amazon(AMZN), and Target(TGT). We chose these three companies because they are pretty representative of the retail industry. All three companies are large retail corporations, and they also focus on different areas including e-commerce, and general merchandise. After we pulled up the dates of earnings announcements in Q4 from Alphavantage, we also got the data of earning surprises which is Actual minus Expected EPS. Then, we used Yahoo finance to get the data on the stock prices a week before the announcement as well as a week after the announcement to calculate the price changes and combined the data for all three companies into one data frame (See Figure 14). We used the data table to perform different tests, and the first one is a two-sample t-test to test our hypothesis on whether earning announcement has an effect on stock price or not. The test statistic turned out to be 1.91 with a p-value of 0.07. At the 95% percent confidence level, we failed to reject the null hypothesis since it's not statistically significant. We also performed a correlation test and a regression graph on the two variables, and the results turned out to be that there is not a strong correlation between the two variables. The correlation coefficient is 0.18, however, the p-value is 0.35 which indicates that it is not significant (See Figure 15). The regression test (See Figure 16) showed similar results to the previous tests. R-squared indicates that only 3.1% of the risk is systematic. The p-value of 0.354 also shows that the result is not statistically significant. Overall, there is not a significant correlation between the earning surprise and stock prices in the retail industry.

Real Estate Sector

To round out our earnings impact research we chose to include Zillow (Z), American Tower Corporation (AMT), and Prologis Inc (PLD), all from the real estate industry. We chose these 3 companies because of their large market share and they all operate in different areas of real estate in order to diversify our research. Looking at the overall real estate industry earnings table (Figure 4), we find that 33% of the time the earnings surprise is negative, while only 23% of the time is the average return negative over the 2-week period surrounding the earnings announcement. Based off this initial overview it may appear that there is a tendency for real estate stocks to trend positive regardless of the actual EPS, however, our research proves

otherwise. After conducting our T-test and finding that the p-value of 0.78 is higher than the alpha of 0.05 we conclude that we fail to reject the null hypothesis. In addition, our Pearson correlation coefficient for this sector is 0.147 and the p-value is 0.45, it is clear that the data is not significantly correlated. The sector regression analysis resulted in an r-squared of 0.022 (Figure 17), which is very low and suggests a limited model fit for our data. Finally, analyzing the graph from figure 5 visualizes the concentration of earnings surprise around the value of 0. Our research into the macroeconomic factors was limited for the project but we suspect that the real estate sector may be different in this aspect as the earnings from REITS primarily come from rent, their earnings may be more predictable meaning there is less surprise on the day of the announcement. Ultimately this may result in more real estate stocks meeting their expected EPS and continuing to grow steadily following the announcement date rather than beating their earnings by a large percentage and making huge gains. Overall we fail to reject our null hypothesis for the real estate sector and according to our sample research it appears that there is no significant correlation between earnings surprise and stock price change before and after the announcement.

Conclusion

In conclusion, out of the five industries, only the Pharmaceutical industry shows that there is a negative correlation between earnings surprise and stock prices. The other four industries do not have significant results, therefore, show no patterns of price change based on earning announcements. To answer our research question, earnings announcements can impact the price of stocks in the Pharmaceutical industry, and the effect of Q4 announcements impacts the Pharmaceutical industry differently. There are some limitations to our research. Our results did not include factors such as macroeconomic events and influences. There are many other factors that can lead to stock price changes. In addition, our sample size is pretty small, with only three stocks and ten-quarters of data in each industry. It might not be representative and might create bias.

Appendix (by sector):

Figure 1- AMT Earnings Table

	Expected EPS	Actual EPS	Actual - Expected EPS	Price Diff Before & After Ann
2023-02-23	1.04	-1.47	-2.51	-0.032090
2022-02-24	1.15	0.99	-0.16	0.015799
2021-02-25	1.27	0.82	-0.45	0.058563
2020-02-25	1.03	1.26	0.23	0.023855
2019-02-27	0.77	0.62	-0.15	-0.020078
2018-02-27	0.74	0.51	-0.23	0.011320
2017-02-27	0.58	0.47	-0.11	-0.038210
2016-02-26	0.51	0.48	-0.03	-0.054343
2015-02-23	0.51	0.42	-0.09	0.009348
2014-02-25	0.47	0.25	-0.22	-0.045575

Figure 2- Z Earnings Table

	Expected EPS	Actual EPS	Actual - Expected EPS	Price Diff Before & After Ann
2023-02-15	0.07	0.21	0.14	NaN
2022-02-10	-1.15	-0.42	0.73	NaN
2021-02-10	0.27	0.41	0.14	0.096603
2020-02-19	-0.3	-0.26	0.04	-0.019442
2019-02-21	0.01	0.01	0	0.029839
2018-02-08	0.19	0.19	0	0.147382
2017-02-07	0.12	0.14	0.02	0.164379
2016-02-11	-0.09	-0.01	0.08	0.208863
2015-02-13	0.28	0.24	-0.04	0.197371
2014-02-12	0.09	0.19	0.1	0.044615

Figure 3- PLD Earnings Table

	Expected EPS	Actual EPS	Actual - Expected EPS	Price Diff Before & After Ann
2023-01-18	0.56	0.63	0.07	0.047050
2022-01-19	0.61	1.67	1.06	0.026455
2021-01-26	0.36	0.38	0.02	0.032201
2020-01-22	0.39	0.59	0.2	-0.041701
2019-01-22	0.42	0.94	0.52	0.032539
2018-01-23	0.34	0.55	0.21	0.024814
2017-01-24	0.26	0.82	0.56	0.015109
2016-01-26	0.13	0.23	0.1	0.038074
2015-01-27	0.09	0.81	0.72	0.006177
2014-01-30	0.04	0.12	0.08	0.018491

Figure 4- Real Estate Sector Earnings Table

	Expected EPS	Actual EPS	Actual - Expected EPS	Price Diff Before & After Ann
2014-01-30	0.04	0.12	0.08	0.018491
2014-02-12	0.09	0.19	0.1	0.044615
2014-02-25	0.47	0.25	-0.22	-0.045575
2015-01-27	0.09	0.81	0.72	0.006177
2015-02-13	0.28	0.24	-0.04	0.197371
2015-02-23	0.51	0.42	-0.09	0.009348
2016-01-26	0.13	0.23	0.1	0.038074
2016-02-11	-0.09	-0.01	0.08	0.208863
2016-02-26	0.51	0.48	-0.03	-0.054343
2017-01-24	0.26	0.82	0.56	0.015109
2017-02-07	0.12	0.14	0.02	0.164379
2017-02-27	0.58	0.47	-0.11	-0.038210
2018-01-23	0.34	0.55	0.21	0.024814
2018-02-08	0.19	0.19	0	0.147382
2018-02-27	0.74	0.51	-0.23	0.011320
2019-01-22	0.42	0.94	0.52	0.032539
2019-02-21	0.01	0.01	0	0.029839
2019-02-27	0.77	0.62	-0.15	-0.020078
2020-01-22	0.39	0.59	0.2	-0.041701
2020-02-19	-0.3	-0.26	0.04	-0.019442
2020-02-25	1.03	1.26	0.23	0.023855
2021-01-26	0.36	0.38	0.02	0.032201
2021-02-10	0.27	0.41	0.14	0.096603
2021-02-25	1.27	0.82	-0.45	0.058563
2022-01-19	0.61	1.67	1.06	0.026455
2022-02-10	-1.15	-0.42	0.73	NaN
2022-02-24	1.15	0.99	-0.16	0.015799
2023-01-18	0.56	0.63	0.07	0.047050
2023-02-15	0.07	0.21	0.14	NaN
2023-02-23	1.04	-1.47	-2.51	-0.032090

Figure 5- Real Estate Regression Plot

Earning Surprise Vs Price Diff

Figure 6- Energy Sector Regression Test Result

Dep. Variable:	Price Diff Before & After Ann		R-squared:	0.045		
Model:	OLS		Adj. R-squared:	0.011		
Method:	Least Squares		F-statistic:	1.331		
Date:	Thu, 16 Mar 2023		Prob (F-statistic):	0.258		
Time:	18:01:17		Log-Likelihood:	-89.137		
No. Observations:	30		AIC:	182.3		
Df Residuals:	28		BIC:	185.1		
Df Model:	1					
Covariance Type:	nonrobust					

	coef	std err	t	P>|t|	[0.025	0.975]
const	-0.7575	0.912	-0.830	0.413	-2.627	1.112
Actual - Expected EPS	-5.3518	4.639	-1.154	0.258	-14.854	4.151

Omnibus:	2.053	Durbin-Watson:	1.677
Prob(Omnibus):	0.358	Jarque-Bera (JB):	1.185
Skew:	-0.109	Prob(JB):	0.553
Kurtosis:	2.051	Cond. No.	5.21

Figure 7- Energy Sector Earnings Table

	Expected EPS	Actual EPS	Actual - Expected EPS	Price Diff Before & After Ann
2014-01-28	0.97	0.95	-0.02	-6.984777
2014-01-30	1.92	1.91	-0.01	-1.463542
2014-01-31	2.57	2.57	0	-4.533355
2015-01-27	1.07	1.03	-0.04	-9.157146
2015-01-30	1.63	1.85	0.22	1.771690
2015-02-02	1.34	1.32	-0.02	7.849043
2016-01-28	1.09	1.17	0.08	-0.682242
2016-01-29	0.47	0.26	-0.21	-2.800463
2016-02-02	0.63	0.67	0.04	7.218980
2017-01-27	1.3	1.21	-0.09	3.445414
2017-01-27	0.64	0.21	-0.43	-2.718285
2017-01-31	0.7	0.9	0.2	-5.292508
2018-01-26	1.31	1.25	-0.06	-1.358102
2018-02-02	1.04	0.88	-0.16	4.507826
2018-02-02	1.22	0.72	-0.5	5.278999
2019-01-25	0.38	0.37	-0.01	3.486881
2019-02-01	1.87	1.95	0.08	-9.413036
2019-02-01	1.08	1.41	0.33	-10.121332
2020-01-24	0.37	0.36	-0.01	3.195317
2020-01-31	1.45	1.49	0.04	-3.610073
2020-01-31	0.43	0.41	-0.02	-2.174015
2021-01-26	0.37	0.4	0.03	5.702452
2021-01-29	0.07	-0.01	-0.08	1.113065
2021-02-02	0.01	0.03	0.02	2.876384
2022-01-25	0.4	0.41	0.01	0.823584
2022-01-28	3.12	2.56	-0.56	0.957222
2022-02-01	1.94	2.05	0.11	2.732731
2023-01-25	0.49	0.51	0.02	2.496260
2023-01-27	4.38	4.09	-0.29	-4.745615
2023-01-31	3.3	3.4	0.1	-4.544490

```
1  sst.ttest_ind(a=Energy_Data['Actual - Expected EPS'],
2           b=Energy_Data['Price Diff Before & After Ann'])
```

Ttest_indResult(statistic=0.5534387903622926, pvalue=0.5820902211326628)

Figure 8 - Technology Sector Earnings Table

	Expected EPS	Actual EPS	Actual - Expected EPS	Price Diff Before & After Ann	STD Diff Before & After Ann
2014-01-27	0.5025	0.5175	0.015	0.055726	0.335458
2014-01-30	0.305	0.3005	-0.0045	0.246697	0.130243
2014-01-30	0.305	0.3005	-0.0045	0.056535	1.402596
2015-01-27	0.65	0.765	0.115	0.057883	2.436463
2015-01-29	0.3555	0.344	-0.0115	0.050217	2.049265
2015-01-29	0.3555	0.344	-0.0115	0.018638	0.417251
2016-01-26	0.8075	0.82	0.0125	-0.019898	-0.171961
2016-02-01	0.4055	0.4335	0.028	-0.036621	-0.048651
2016-02-01	0.4055	0.4335	0.028	-0.015575	2.983893
2017-01-26	0.4825	0.468	-0.0145	-0.027165	2.412010
2017-01-26	0.4825	0.468	-0.0145	-0.014414	-0.520418
2017-01-31	0.8025	0.84	0.0375	0.008542	0.672869
2018-02-01	0.499	0.485	-0.014	0.084557	5.187058
2018-02-01	0.499	0.485	-0.014	0.023132	2.001424
2018-02-01	0.965	0.9725	0.0075	0.064808	1.850348
2019-01-29	1.04	1.05	0.01	-0.044545	0.973188
2019-02-04	0.541	0.6385	0.0975	-0.069771	11.730566
2019-02-04	0.541	0.6385	0.0975	-0.007840	2.716841
2020-01-28	1.14	1.25	0.11	0.050430	3.183948
2020-02-03	0.6265	0.7675	0.141	0.000974	-0.109049
2020-02-03	0.6265	0.7675	0.141	-0.032684	-0.823568
2021-01-27	1.41	1.68	0.27	-0.021481	0.014482
2021-02-02	0.8	1.12	0.32	0.127262	4.091705
2021-02-02	0.8	1.12	0.32	0.031630	0.927465
2022-01-27	1.89	2.1	0.21	0.040216	0.942406
2022-02-01	1.37	1.53	0.16	-0.013058	0.650622
2022-02-01	1.37	1.53	0.16	-0.011223	-0.169067
2023-02-02	1.94	1.88	-0.06	-0.070966	4.123938
2023-02-02	1.18	1.05	-0.13	0.007028	1.501902
2023-02-02	1.18	1.05	-0.13	-0.020516	0.615081

Figure 9 - Technology Sector Plot
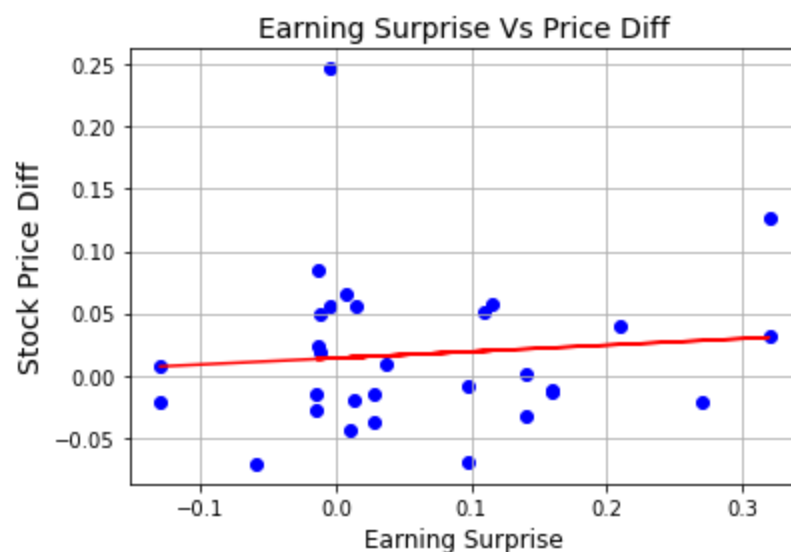
Figure 10 - Technology Sector Regression Results

OLS Regression Results

Dep. Variable:	Price Diff Before & After Ann	R-squared:	0.009
Model:	OLS	Adj. R-squared:	-0.026
Method:	Least Squares	F-statistic:	0.2537
Date:	Thu, 16 Mar 2023	Prob (F-statistic):	0.618
Time:	19:46:46	Log-Likelihood:	41.040
No. Observations:	30	AIC:	-78.08
Df Residuals:	28	BIC:	-75.28
Df Model:	1		
Covariance Type:	nonrobust		

	coef	std err	t	P>|t|	[0.025	0.975]
const	0.0140	0.013	1.056	0.300	-0.013	0.041
Actual - Expected EPS	0.0519	0.103	0.504	0.618	-0.159	0.263

Omnibus:	23.075	Durbin-Watson:	1.365
Prob(Omnibus):	0.000	Jarque-Bera (JB):	39.789
Skew:	1.730	Prob(JB):	2.29e-09
Kurtosis:	7.457	Cond. No.	8.89

Figure 11- Pharmaceutical Sector Earnings table

	Expected EPS	Actual EPS	Actual - Expected EPS	Price Diff Before & After Ann
2014-01-21	1.2	1.24	0.04	-0.013856
2014-01-24	0.43	0.51	0.08	0.023717
2014-01-31	0.82	0.82	0	0.045971
2015-01-20	1.25	1.27	0.02	0.028920
2015-01-27	0.41	0.46	0.05	0.021182
2015-01-30	0.86	0.89	0.03	0.035234
2016-01-26	1.42	1.44	0.02	0.020749
2016-01-28	0.28	0.38	0.1	-0.027115
2016-01-29	1.12	1.13	0.01	0.035905
2017-01-24	1.56	1.58	0.02	0.001735
2017-01-26	0.67	0.63	-0.04	0.043814
2017-01-27	1.2	1.2	0	0.129754
2018-01-23	1.72	1.74	0.02	-0.007154
2018-01-26	1.44	1.48	0.04	-0.104655
2018-02-05	0.67	0.68	0.01	-0.023270
2019-01-22	1.95	1.97	0.02	-0.025738
2019-01-24	0.85	0.94	0.09	-0.023292
2019-01-25	1.94	1.9	-0.04	0.112460
2020-01-22	1.87	1.88	0.01	-0.015599
2020-02-06	0.88	1.22	0.34	-0.045532
2020-02-07	2.19	2.21	0.02	-0.006616
2021-01-26	1.82	1.86	0.04	0.066509
2021-02-03	2.85	2.92	0.07	-0.041081
2021-02-04	1.42	1.46	0.04	-0.037224
2022-01-25	2.12	2.13	0.01	-0.014838
2022-02-02	3.29	3.31	0.02	-0.050203
2022-02-04	1.8	1.83	0.03	-0.019484
2023-01-24	2.23	2.35	0.12	-0.026127
2023-02-02	1.72	1.82	0.1	-0.072381
2023-02-09	3.56	3.6	0.04	0.008227

Figure 12- Pharmaceutical Sector Regression Analysis

OLS Regression Results

Dep. Variable:	Price Diff Before & After Ann	R-squared:	0.185
Model:	OLS	Adj. R-squared:	0.156
Method:	Least Squares	F-statistic:	6.343
Date:	Thu, 16 Mar 2023	Prob (F-statistic):	0.0178
Time:	18:37:19	Log-Likelihood:	51.197
No. Observations:	30	AIC:	-98.39
Df Residuals:	28	BIC:	-95.59
Df Model:	1		
Covariance Type:	nonrobust		

	coef	std err	t	P>|t|	[0.025	0.975]
const	0.0145	0.010	1.456	0.157	-0.006	0.035
Actual - Expected EPS	-0.3164	0.126	-2.518	0.018	-0.574	-0.059

Omnibus:	2.458	Durbin-Watson:	1.788
Prob(Omnibus):	0.293	Jarque-Bera (JB):	1.194
Skew:	0.337	Prob(JB):	0.550
Kurtosis:	3.708	Cond. No.	15.2

Notes:
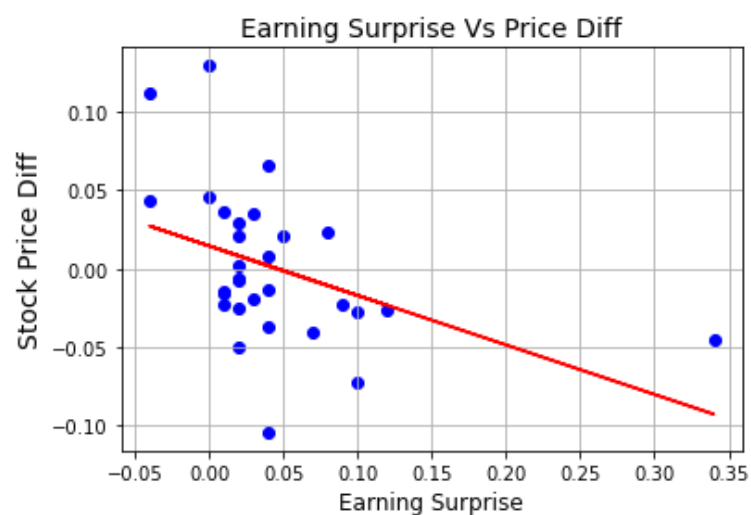[1] Standard Errors assume that the covariance matrix of the errors is correctly specified.

Figure 13- Pharmaceutical Sector Scatter Plot

Figure 14- Retail Sector Earnings table

	Expected EPS	Actual EPS	Actual - Expected EPS	Price Diff Before & After Ann
2014-01-30	0.66	0.51	-0.15	0.020283
2014-02-20	1.59	1.6	0.01	-0.014953
2014-02-26	0.79	0.9	0.11	-0.003814
2015-01-29	0.17	0.45	0.28	0.057182
2015-02-19	1.54	1.61	0.07	0.018124
2015-02-25	1.46	1.5	0.04	0.129526
2016-01-28	1.56	1	-0.56	0.021609
2016-02-18	1.46	1.49	0.03	-0.060986
2016-02-24	1.54	1.52	-0.02	-0.066430
2017-02-02	1.35	1.54	0.19	0.074019
2017-02-21	1.29	1.3	0.01	0.011445
2017-02-28	1.51	1.45	-0.06	-0.019350
2018-02-01	1.84	2.16	0.32	0.006033
2018-02-20	1.37	1.33	-0.04	0.017010
2018-03-06	1.38	1.37	-0.01	0.048383
2019-01-31	5.68	6.04	0.36	-0.002374
2019-02-19	1.33	1.41	0.08	-0.095357
2019-03-05	1.52	1.53	0.01	-0.056660
2020-01-30	4.03	6.47	2.44	-0.017094
2020-02-18	1.44	1.38	-0.06	0.040967
2020-03-03	1.66	1.69	0.03	-0.128725
2021-02-02	0.36	0.71	0.35	-0.024454
2021-02-18	1.51	1.39	-0.12	-0.004182
2021-03-02	2.54	2.67	0.13	0.082661
2022-02-03	0.18	1.39	1.21	0.140017
2022-02-17	1.5	1.53	0.03	-0.021811
2022-03-01	2.86	3.19	0.33	0.005253
2023-02-02	0.18	0.03	-0.15	-0.076896
2023-02-21	1.51	1.71	0.2	-0.022679
2023-02-28	1.4	1.89	0.49	0.085425

Figure 15- Retail Industry Regression Graph

Earning Surprise Vs Price Diff

Correlation coefficient: 0.17544225471581953
P-value: 0.35375750559389807
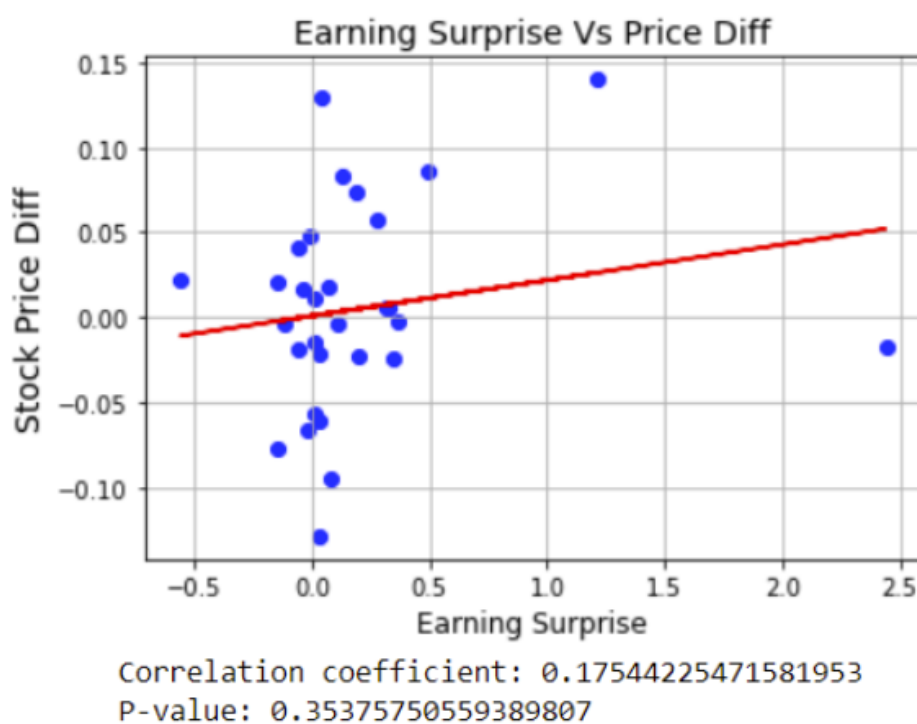
Figure 16- Retail Industry Regression Analysis

Dep. Variable:	Price Diff Before & After Ann	R-squared:	0.031
Model:	OLS	Adj. R-squared:	-0.004
Method:	Least Squares	F-statistic:	0.8892
Date:	Thu, 16 Mar 2023	Prob (F-statistic):	0.354
Time:	17:16:01	Log-Likelihood:	42.065
No. Observations:	30	AIC:	-80.13
Df Residuals:	28	BIC:	-77.33
Df Model:	1		
Covariance Type:	nonrobust		

	coef	std err	t	P>|t|	[0.025	0.975]
const	0.0009	0.012	0.072	0.943	-0.024	0.025
Actual - Expected EPS	0.0210	0.022	0.943	0.354	-0.025	0.067

Omnibus:	0.043	Durbin-Watson:	1.607
Prob(Omnibus):	0.979	Jarque-Bera (JB):	0.125
Skew:	0.071	Prob(JB):	0.940
Kurtosis:	2.718	Cond. No.	2.07

Figure 17- Real Estate Regression Table

Dep. Variable:	Price Diff Before & After Ann	**R-squared:**	0.022
Model:	OLS	**Adj. R-squared:**	-0.016
Method:	Least Squares	**F-statistic:**	0.5756
Date:	Thu, 16 Mar 2023	**Prob (F-statistic):**	0.455
Time:	19:25:41	**Log-Likelihood:**	35.770
No. Observations:	28	**AIC:**	-67.54
Df Residuals:	26	**BIC:**	-64.87
Df Model:	1		
Covariance Type:	nonrobust		

	coef	std err	t	P>|t|	[0.025	0.975]
const	0.0355	0.013	2.685	0.012	0.008	0.063
Actual - Expected EPS	0.0176	0.023	0.759	0.455	-0.030	0.065

Omnibus:	9.335	**Durbin-Watson:**	2.396
Prob(Omnibus):	0.009	**Jarque-Bera (JB):**	7.813
Skew:	1.229	**Prob(JB):**	0.0201
Kurtosis:	3.807	**Cond. No.**	1.75