Extension of Differential Market Reactions to Revenue and Expense Surprises in 2019-2022

Abstract. This research paper investigates the differential reactions of investors and the market to surprises in revenues versus expenses by Ertimur, Livnat, and Martikainen (2003) and explores whether value and growth companies exhibit distinct responses to sales and earnings surprises. We explore the possible implications of market dynamics that have undergone significant changes over the past two decades, with growth firms now on the rise. The findings show that investors react more strongly to earnings and sales surprises for growth firms compared to value firms in the modern market. These differential reactions provide valuable insights into earnings management strategies employed by companies and can aid in identifying manipulation techniques and developing more effective models for detecting earnings management.

In the past two decades, the business landscape has witnessed transformative shifts, including increased information access, the rise of growth companies, and the potential obsolescence of value firms. Previous research highlighted contrasting market reactions to revenue and expense surprises, as well as divergent responses between growth and value companies, compelling us to explore the continuity of these results. A body of research has documented investors having a stronger reaction to revenue surprises than expenses surprises (Ertimur et al. (2003)). In Ertimur, it has also documented investors reacting more strongly to sales surprises for growth firms compared to value firms, and investors being more indifferent between a dollar of revenue surprise and a dollar of cost reduction for value companies than growth companies. The purpose of this study is to find whether the differential market reactions to revenue and earnings surprises in Ertimur have stayed consistent or changed throughout recent history by using recent data from 2019 to 2022. This may have a big impact on the fundamental incentive of how management behaves at firms, and change the way managers will react and respond to earnings and sales surprises.

In studies conducted in the past such as Swaminathan and Weintrop (1991), they used a sample of 218 firms, and found a statistically significant negative relation between risk adjusted returns and unexpected expenses.

In Rees and Sivaramakrishnan (2001), they have found that the revenue response coefficient is statistically significant when earnings controlling is used. The findings of Ertimur et al. (2003) reveal that investors respond more strongly to sales surprises than cost savings, and this reaction is more pronounced for growth companies compared to value companies. Ertimur also reveals that decomposing earnings surprises into sales and expense surprises can help identify potential cases of expense management. Other studies introduce more nuance into their stock predicting parameters, such as Kama (2009), where they found that companies with high research and development intensity experience a decreased effect of earnings surprise on stock returns compared to companies with low R&D intensity. Regarding the research question, its economic rationale lies within the developments of the business landscape within the past few decades. Given the results of prior literature, concluding that there is a differential in investor reactions to revenue and expense surprises as well as growth and value firms, it is important to figure out if these conclusions still hold. Furthermore, these results can drastically impact manager decisions at firms, and the use of earnings management at firms.

Our study differs from prior literature in a couple of ways. In prior literature, like Swaminathan and Weintrop (1991) and Rees and Sivaramakrishnan (2001), they used seasonal random walk and random walk surprises to conduct their research. In other literature, like Ertimur et al. (2003), they included analyst forecasts for value firms and growth firms, as well as the earnings surprise broken down into revenue and expense surprises. In this study, we use similar data as Ertimur, however the main difference lies in the dataset used, ours being from 2019-2022, while Ertimur et al. (2003) uses data from 1997-2001. While from the findings in Ertimur it seemed that value strategies were previously superior, now it is not so clear anymore, due to growth companies rising in popularity. To illustrate this change in modern day markets, social media apps such as Threads have been able to reach 100 million users in a span of only five days, and ChatGPT, an artificial intelligence chat bot firm, increased its valuation from zero to 30 billion dollars in a span of 2 months. It is important to analyze new market reactions to revenue and expense surprises given this increased market efficiency. Furthermore, another change is that value firms are no longer dominant compared to growth firms, giving importance to our study in finding out whether there is still a difference in market reactions to growth and value firm's earnings and expense surprises.

From our data, the results show that investors react more strongly (approximately twice as much) towards earnings and sales surprises for growth firms than value firms in the modern market. While not equivalent in exact magnitude, this is equivalent with the findings in Ertimur, where investors are more indifferent towards earnings and

sales surprise for value firms, and react more strongly towards earnings and sales surprise for growth firms. We also find that both analyst quarterly earnings and sales surprises have statistically significant positive associations for three day returns, with similar magnitudes of strength. When earnings surprise was broken down into sales and expense surprise, we also found that sales surprise had a larger coefficient in magnitude compared to expense surprise, and expense surprise having a negative correlation with three day returns. Based on the OLS regression results, it can be seen that investors react more strongly for growth companies, for earnings, sales and expense surprises.

The next sections will describe the literature review, research design, data used, summary statistics and regression results, and the results from the regression. Finally, the last section will summarize the study.

1.   Literature Review

1.1   Previous Studies of Investor Reactions to Earnings and Sales Surprises

In prior literature, such as Ertimur et al. (2003), it finds that investors react more strongly to sales surprises than cost savings, with growth firms eliciting stronger responses compared to value firms. This is consistent with the findings in Rees and Sivaramakrishnan (2001), where they also found that the revenue forecast has a stronger association with growth firms than value firms. In regards to what prior literature says about value companies, Ertimur et al. (2003) displays findings that show that investors are more indifferent between a dollar surprise in cost savings than a dollar surprise in sales for value companies than growth companies. Furthermore, it can be deduced that investors place less importance on earnings surprises for value companies, because the coefficient for size-adjusted returns regressed on earnings surprises is greater for growth companies than value companies. Other literature adds further to the study of Investor Reactions to Earnings and Sales surprises, such as Kama (2009). In the study, they focused on specific factors that could affect differential reactions, instead of comparing market reactions to earnings and sales surprises as a whole. For example, the fiscal quarter can have a great impact on reaction intensity, and Market reaction to earnings surprises is lower in the fourth fiscal quarter due to high earnings management and write-offs. Other factors, such as losses or intense R&D are correlated with underreactions to earnings.

1.2   Investor Reaction to Value and Growth Firms' Earnings and Sales Surprises

Prior research has shown differential returns and traits of value and growth firms. Many discuss the superiority of a "value" investment strategy. One particular characteristic of this strategy is targeting low price/earning ratios (Graham and Dodd, 1934; Latane et al., 1969; Basu,1977). Other research, like Jaffe et al. (1989), Chan et al. (1991), Fama and French (1992, 1996), and Davis et al. (2000) advocate for low market to book ratios, (the reciprocal of book to market ratio), which all result in abnormally positive returns. These strategies by definition would favor value companies, as value companies have low market to book ratios, or high book to market ratios. Based on the conclusions of prior research, we can see that investors have a stronger reaction to earnings and sales surprises at growth companies than value companies. From Ertimur et al (2003), they describe that given all the research advocating for the superiority of value strategies over growth strategies, we can expect investors to on average have a stronger reaction to surprises at growth firms. This is because investors in growth firms are more concerned about the stability of the firm, its market, and growth than controlling its cost. When growth investors encounter a sales or earning surprise, they are thus more likely to have a more substantial reaction than value investors. Value investors have more stability, as the market for value firms has had a longer period of time to mature and stabilize, which also allows for value investors to have a deeper understanding of their markets.

1.3   Limitations

Our research was conducted in a manner very similar to Ertimur, however due to modern day circumstances we are still presented with some limitations. Global markets have been deeply affected by the COVID-19 pandemic, causing great fluctuations within the data used in our study and potential outliers that affect the accuracy of our regressions. However, we do not have a possible source of bias in Ertimur, where they had a lot more analyst forecasts for growth firms than value firms (twice as many). In our study, the average number of forecasts per distinct firm is approximately equal (4.9 and 4.5) for value and growth firms respectively, reducing possible bias from the actual raw analyst forecasts themselves.

2.   Research Design

There were three datasets used in this study, one with data from 1990 to 2022, one with data from 2018 to 2022, and one with data from 2020 to 2022. The dataset with data from 1990 to 2022 contains information about surprise history for firms from IBES. The data from 2018 to 2022 is from Compustat, with financial and market information about firms across the globe including quarterly income statements, and much more. The data from 2020 to 2022 is from CRSP (Center for Research in Securities Prices), a dataset with information about securities.

The data from Compustat and CRSP were joined together based on columns that had the same date and ticker, and the three day returns data was calculated. From the raw data, the book to market ratios, and market value of equity were also calculated, to help rank the companies into growth vs value companies. If the company had a fourth quartile dividend yield and first third percentile book to market ratio, then it would be considered a growth company. If the company had a fourth quartile dividend yield and a last third percentile book to market ratio, then it would be considered a value company. Later, the seasonal random walk and random walk earnings and sales surprises were calculated, alongside the analyst earnings, sales, and expense surprises to run the OLS regressions for tables two and three. The earnings surprise was broken down into sales and expenses to help analyze differential reactions when earnings were broken down.

3.   Data and Results

3.1   Summary Statistics

Table 1 Panel A displays summary statistics for all firms used in our study. When compared to Ertimur et al. (2003), we use more distinct firms (3341 versus 3089) but Ertimur has a greater number of total observations (20487 versus 17767) possibly due to the fact that it uses data across a longer period of time, and other factors. Compared to Swaminathan and Weintrop (1991), they only use 220 firms, and 3520 observations for their research. Similarly for Rees and Sivaramakrishnan (2001), they used a smaller number of firms and observations than our study, with 2090 unique firms, and 4898 observations.

Table 1 Panel A: Descriptive Statistics

In this table, Panels A, B and C present descriptive statistics of the analyst estimate subsample for all the firms, value firms, and growth firms, respectively. Panel D presents descriptive statistics of the seasonal random walk and random walk variables for the entire sample. Panels E and F present descriptive statistics of the seasonal random walk and random walk variables for the value firm subsample and the growth firm subsample, respectively. Variable definitions are provided in the appendix.

3341 unique firms

	N	Min	10	25	50	75	90	Max
Analyst Quarterly Earnings Surprise	17767	-215.700	-1.882	-0.236	1.136	3.170	6.351	439.179
Analyst Quarterly Sales Surprise	17767	-988.243	-1.396	-0.233	0.933	2.7381	6.159	2162.17
Three Day Return	17767	1.272	1.912	1.964	2.003	2.044	2.097	3,125
Market Value of Equity	17767	5.698	221.473	660.948	2418.44	8736.52	30808.9	2522400
Book/market	17767	0.000	0.089	0.196	0.414	0.7263	1.154	39.939

Table 1 Panel B: Value Firms Subsample
542 unique value firms

	N	Min	10	25	50	75	90	Max
Analyst Quarterly Earnings Surprise	2654	-51.780	-1.723	-0.169	1.128	3.038	6..092	116.137
Analyst Quarterly Sales Surprise	2654	-351.367	-1.643	-0.470	0.577	2.027	4.752	2162.17
Three Day Return	2654	1.273	1.944	1.977	2.007	2.039	2.079	2.572
Market Value of Equity	2654	8.067	201.351	460.620	1394.92	4506.94	19730.1	379824
Book/market	2654	0.464	0.679	0.821	1.014	1.299	1.697	12.797

Table 1 Panel C: Growth Firms Subsample
1255 unique growth firms

	N	Min	10	25	50	75	90	Max
Analyst Quarterly Earnings Surprise	5652	-215.700	-1.760	-0.236	1.241	3.431	6.870	119.550
Analyst Quarterly Sales Surprise	5652	-988.244	-1.003	0.095	1.386	3.665	7.857	1485.22
Three Day Return	5652	1.272	1.889	1.951	1.999	2.046	2.106	3.125

Market Value of Equity	5652	10.631	362.590	1217.68	4299.84	14632.9	43852.4	2522400
Book/market	5652	0.000	0.0414	0.082	0.144	0.214	0.258	0.456

Table 1 Panel D: All Firm Subsample

	N	Min	10	25	50	75	90	Max
Earnings Surprise-SRW	17767	-2266	-2.272	-0.803	-0.041	0.577	2.080	31037
Sales Surprise-SRW	17767	-78.117	-0.279	-0.073	0.073	0.282	0.723	20469.5
Earnings Surprise-RW	17767	-1395	-1.643	-0.567	-0.025	0.341	1.381	1193.62
Sales Surprise-RW	17767	-47.544	-0.152	-0.025	0.040	0.139	0.351	6402.4

Table 1 Panel E: Value Firm Subsample

	N	Min	10	25	50	75	90	Max
Earnings Surprise-SRW	2654	-1809.27	-2.296	-0.760	-0.053	0.494	1.745	1159.99
Sales Surprise-SRW	2654	-29.115	-0.297	-0.124	-0.019	0.098	0.361	14.849
Earnings Surprise-RW	2654	-383	-1.616	-0.594	-0.023	0.302	1.316	549.1
Sales Surprise-RW	2654	-32.654	-0.144	-0.040	0.011	0.079	0.214	9.292

Table 1 Panel F: Growth Firm Subsample

	N	Min	10	25	50	75	90	Max
Earnings Surprise-SRW	5652	-824.461	-1.832	-0.562	0.054	0.676	2.152	31037
Sales Surprise-SRW	5652	-78.117	-0.235	-0.001	0.158	0.404	0.964	20469.5
Earnings Surprise-RW	5652	-1099.72	-1.351	-0.401	0.0	0.342	1.171	1193.62
Sales Surprise-RW	5652	-47.544	-0.144	-0.003	0.061	0.167	0.431	1724.17

For both Swaminathan and Weintrop (1991) and Rees and Sivaramakrishnan (2001), our data is different because we use analyst quarterly earnings and sales surprises for our regressions. In table 1, Panels A, B and C display the min, max, and 10th, 25th, 50th, 75th and 90th percentiles for Quarterly Analyst Earnings surprise, Quarterly analyst sales surprise, book to market ratios, and Market Value of Equity, and the day return for all the firms in the sample, the value firm sub sample, and the growth firm sub sample respectively. Panels D, E and F also display the min, max, and 10th, 25th, 50th, 75th and 90th percentiles for Seasonal Random Walk and Random Walk earnings and

sales surprises for all the firms in the sample, the value firm sub sample, and the growth firm sub sample respectively.

3.2 Differential Reactions to Revenue and Expense Surprises

In table 2 Panel A models 1, 2 and 3, the three day return is regressed on the analyst quarterly earnings surprise, analyst quarterly sales surprise, and earnings broken down into analyst quarterly sales surprise and analyst quarterly expense surprise respectively. The results show that the sales surprise is positively associated with the three day return, which consistent with prior literature like Ertimur et al. (2003), however the coefficient itself is much smaller in magnitude than the coefficients in Ertimur and Swaminathan and Weintrop (1991). The earnings is also positively associated with the three day return, with a coefficient of magnitude very similar to that of sales surprise. When earnings are broken down into sales and expense surprise, we see that investors have an increased strength of reaction towards sales, but a negative reaction towards expense surprise, showing that when earnings is broken down into sales and expenses, investors and the market will have differential reactions.

Table 2: Three Day Return on Earnings, Sales and Expense Surprises

Panel A: Analyst Forecast Subsample

Table 2 Panel A provides evidence for the analyst forecast subsample on the association between the three day stock return after an earnings announcement and the analyst surprise earnings and surprise revenue score. In model 1, the three day return in quarter, t, is regressed on the analyst surprise earnings score (SUE). In model 2, the three day return in quarter, t, is regressed on the analyst surprise revenue score (SUR). ***, **, and * indicate p-values of 1%, 5%, and 10%, respectively. Robust t-statistics are reported in parentheses.

$$(1)\ ThreeDayReturn\ =\ \beta_0 + \beta_1 SUE\ +\ \epsilon$$
$$(2)\ ThreeDayReturn\ =\ \alpha_0 + \alpha_1 SUR\ +\ \epsilon$$
$$(3)\ ThreeDayReturn\ =\ \alpha_0 + \alpha_1 SUR + \alpha_2 SUEX\ +\ \epsilon$$

	(1)	(2)	(3)
	Three Day Return	*Three Day Return*	*Three Day Return*
Intercept	**2.0015*** **	**2.0017*** **	**1.999*** **
	(2701.245)	**(2670.324)**	**(2590.143)**
Earnings surprise	**0.002*** **		
	(12.409)		
Sales surprise		**0.0018*** **	**0.0029*** **
		(10.887)	**(14.366)**
Expense surprise			**-0.0016*** **
			(-9.462)
Adjusted R-square	.009	.007	0.012
N	17087	17087	17087

Table 2: Three Day Return on Earnings and Sales Surprises

Panel B: The Entire Sample

Table 2 Panel B provides evidence for the entire sample on the association between the three day stock return after an earnings announcement and the seasonal random walk and random walk earnings surprise and sales surprise. In model 1, the three day return in quarter, t, is regressed on the seasonal random walk earnings surprise. In model 2, the three day return in quarter, t, is regressed on the seasonal random walk sales surprise. In model 3, the three day return in quarter, t, is regressed on the random walk earnings surprise. In model 4, the three day return in quarter, t, is regressed on the random walk sales surprise. ***, **, and * indicate p-values of 1%, 5%, and 10%, respectively. Robust t-statistics are reported in parentheses.

$(1)\ ThreeDayReturn\ =\ \beta_0 + \beta_1 Earnings\ Surprise\ SRW\ +\ \epsilon$

$(2)\ ThreeDayReturn\ =\ \alpha_0 + \alpha_1 Sales\ Surprise\ SRW\ +\ \epsilon$

$(3)\ ThreeDayReturn\ =\ \gamma_0 + \gamma_1 Sales\ Surprise\ RW\ +\ \epsilon$

$(4)\ ThreeDayReturn\ =\ \Theta_0 + \Theta_1 Sales\ Surprise\ RW\ +\ \epsilon$

	Seasonal Random Walk		Random Walk	
	(1)	(2)	(3)	(4)
	Three Day Return	*Three Day Return*	*Three Day Return*	*Three Day Return*
Earnings surprise - SRW	-0.000			
	(-0.127)			
Sales surprise - SRW		0.000		
		(0.137)		
Earnings surprise - RW			0.000	
			(0.765)	
Sales surprise - RW				-0.000
				(-0.498)
Adjusted R-square	-0.000	-0.000	-0.000	-0.000
N	17087	17087	17087	17087

In table 2 Panel B, models 1-4 display OLS regressions of three day return regressed on seasonal random walk and random walk earnings and sales surprises. For all regressions and the independent variables of those regressions, the coefficients and adjusted R-squared are near zero. The t statistic is also very low, and the p value is exceptionally high, showing that there is no statistical significance, and Seasonal random walk and random walk sales and earnings surprises are loosely correlated with three day return.

3.3 Differential Reactions to Value and Growth Firms

In table three model 1, an OLS regression is conducted with the three day return regressed on the value dummy, earnings surprise and earnings surprise interacted with the dummy variable. The results display a positive association between earnings surprise and three day returns, with statistical significance at the 1% level. In model 2, an OLS regression is conducted with the three day return regressed on the value dummy, sales surprise and sales surprise interacted with the dummy variable. In model 3, an OLS regression is conducted with the three day return regressed on the value dummy, sales surprise, sales surprise interacted with the dummy variable, expense surprise, and expense surprise interacted with the dummy variable.

Table 3: Three Day Return on Earnings and Sales Surprises with Value Dummy and Value Dummy Interaction Term

Table 3 Panel A provides evidence for the analyst forecast subsample on the association between the three day stock return after an earnings announcement and the value dummy, the analyst surprise earnings (revenue) score, and the value dummy interacted with the analyst surprise earnings (revenue) score. In model 1, the three day return in quarter, t, is regressed on the analyst surprise earnings score (SUE). In model 2, the three day return in quarter, t, is regressed on the analyst surprise revenue score (SUR). ***, **, and * indicate p-values of 1%, 5%, and 10%, respectively. Robust t-statistics are reported in parentheses.

(1) $ThreeDayReturn = \beta_0 + \beta_1 SUE + \beta_2 SUE * D + \beta_3 D + \epsilon$
(2) $ThreeDayReturn = \alpha_0 + \alpha_1 SUR + \beta_2 SUR * D + \beta_3 D + \epsilon$
(3) $ThreeDayReturn = \alpha_0 + \alpha_1 SUR + \alpha_2 SUR * D + \alpha_3 SUEX + \alpha_4 SUEX * D + \alpha_5 D + \epsilon$

	(1)	(2)	(3)
	Three Day Return	*Three Day Return*	*Three Day Return*
Intercept	2.000***	2.000***	1.999***
	(2499.072)	(2450.117)	(2385.945)
Value dummy variable	.008***	0.009***	0.009***
	(3.719)	(4.439)	(4.328)
Earnings surprise	0.002***		
	(12.280)		
Sales surprise		0.002***	0.003***
		(11.213)	(14.447)
Expense surprise			-0.002***
			(-9.146)
*Earnings surprise * Value Dummy*	-0.001*		
	(-1.794)		
*Sales surprise * Value Dummy*		-0.001**	-0.0015**
		(-2.288)	(-2.334)
*Expense surprise * Value Dummy*			0.001
			(1.106)
Adjusted R-square	0.01	0.008	0.013
N	17087	17087	17087

There is statistical significance at the 1% for the sales surprise coefficient. There is also a positive association between sales surprise and three day returns, however the magnitude of the coefficient is approximately half of that of earnings surprise, showing that investors react more to earnings surprise for growth companies. For all three models, the adjusted R-squared value is approximately equal in value. The results show that sales surprise is much less associated with three day returns for value companies than compared with growth companies. This is consistent with the findings in Ertimur et al. (2003) where investors seem to place more importance on the sales surprise for growth companies than value companies. From model three, we can also see that investors have a stronger reaction towards sales surprise, when earnings is broken down into sales and expense surprise, and a negative reaction for expense surprise. This is also consistent with the findings in Ertimur et al. (2003), where expense surprise has a negative correlation with size adjusted return.

4.   Discussion of Results

The research question presented in my replication is whether investors and the market react differently to dollar surprises in revenues compared to dollar surprises in expenses, and whether value and growth companies have differential reactions to sales surprises and earnings surprises. While conclusions have been made about these

questions in the past (specifically around the 2000's) the business landscape has drastically changed over the past two decades. Growth firms are on the rise, value firms have the possibility of being obsolete, and everyone has greater access to information and research. This possibly reduces the importance of professional analysts, and greatly affects how analyst forecasts may be associated with returns for firms today. By answering our research question in this replication, we can find out important information for our current markets, and even change how financial managers may conduct their work.

Understanding differential reactions to earnings and sales surprises, as well as the specific reactions for growth and value firms, can contribute to our understanding of earnings management in several ways. Firstly, it can provide insights into potential manipulation strategies employed by companies. By examining how investors and the market respond differently to earnings and sales surprises, we can identify patterns and behaviors that may indicate earnings management practices. Secondly, it helps in identifying the effectiveness of manipulation techniques. Differential reactions between growth and value firms can shed light on which types of companies are more successful in manipulating earnings. In Patricia M. Dechow, Richard G. Sloan and Amy P. Sweeney (1995) their study suggests the need for more powerful models to detect subtle cases of earnings management, and the inaccuracy of models when applied to firms with extreme financial performance. Understanding differential reactions may aid in developing more effective detection models for earnings management.

In Table 1 Panels A and D, summary statistics are displayed about numerous variables used in the study for the sample of analyst forecasts from 2020 to 2022 using 3341 unique firms and 17767 total observations. For all the firms, the Seasonal Random Walk Earnings and Sales surprises, and Random Walk Earnings and Sales surprises coefficients were approximately zero at the median (-0.041, 0.073, -0.025, 0.04) respectively. It is notable that the magnitude of the absolute value of Seasonal Random Walk surprises is significantly greater than the magnitude of the absolute value of the Random Walk surprises. This also holds true for the majority of the values in the min and max sections, along with the 10th, 25th, 50th, 75th, and 90th, percentiles. For the Max, the seasonal random walk sales surprise is 20469.6, the greatest for all variables, while the greatest minimum in magnitude is Seasonal Random Walk earnings surprise with a value of -2266. Based on the data on the firms in the entire sample, we can see that the majority of them are growth firms, with the 90th percentile for the book to market ratio being 1.0079 and the 75th percentile being 0.6759.

This is further supported by comparing panels B and E (value firms) and panels C and F (growth firms). There are a total of 542 unique value firms and 2654 observations used for Panel B and E, and a total of 1255 unique growth firms and 5652 observations for Panel C and F, showing that in the current market there are a lot more growth firms than value firms. When comparing the median book to market ratio for the growth and value firms, there is a substantial difference (as per definition) of 0.144 compared to 1.014. As for the three day return, and analyst quarterly earnings surprise, it is relatively equal between growth and value firms at the median. However, when comparing analyst quarterly sales surprise and market value of equity, we see drastic differences. Growth firms have much larger market values, and also much higher analyst quarterly sales surprises than value firms. Looking at the Seasonal Random Walk earnings and sales surprises for the value and growth firm subsamples, the distributions and magnitudes are approximately equal. Similar to the all firms sample, the median is centered at about 0 (-0.053, -0.019) for value firms and (0.054, 0.158) for growth firms. It is important to note that these coefficients are positive for growth firms, but negative for value firms, suggesting that the relative majority of value firms actually have negative seasonal random walk earnings and sales surprises. Similar results can be seen for random walk earnings and sales surprises. At the median, value firms have coefficients of (-0.023, 0.011) while growth firms have coefficients of (0.0, 0.061). At the 90th percentile level, growth firms have substantially higher sales surprises (for both seasonal random walk and random walk) compared to value firms, but the magnitude of earnings surprise for growth and value firms are approximately equal.

In Table 2 Panel A, model 1 displays an OLS regression for the three day return regressed on earnings surprise for firms within the analyst forecast subsample. Model 2 displays an OLS regression for the three day returns regressed on sales surprise using the same sample. A total of 17087 observations were used, and in both regressions, the coefficient for sales and earnings surprise is approximately the same (0.002 and 0.0018). Both the sales and earnings surprise coefficients are statistically significant at the 1% level. One thing to note is that the intercept for all three in models in Table 2 Panel A is relatively equal and centered at two. When the earnings surprise is broken down into sales surprise and expense surprise, we see that investors have a stronger reaction to sales surprise than expense surprise (in magnitude), while the coefficient for sales surprise is positive and the coefficient for expense surprise is negative. The adjusted R-squared value for model 1 is 0.009, the R-squared value for model 2 is 0.007, and the R-squared value for model 3 is 0.012.

In Table 2 Panel B, models 1 through 4 display an OLS regression for the three day return regressed on seasonal random walk earnings surprise, seasonal random walk sales surprise, random walk earnings surprise and random walk sales surprise respectively. In all four models, the coefficient for the independent variable can be considered as zero, and none of them hold statistical significance. Similarly, all the adjusted R-square values for all four models are also zero. Panel B suggests that seasonal random walk and random walk surprises are not good predictors of three day return for all firms in general.

In Table 3, model one displays an OLS regression of three day returns for the entire sample regressed on the Value Dummy, earnings surprise, and earnings surprise interacted with the value dummy with a total of 17087 observations. Here, the earnings surprise coefficient is 0.002, the coefficient for the earnings surprise interacted with the value dummy is -0.001 and the adjusted R-square value is 0.01. The earnings surprise coefficient holds statistical significance at the one percent level, while the earnings surprise interacted with the value dummy only holds significance at the ten percent level. In model two, an OLS regression is run with the three day returns regressed on the value dummy, sales surprise, and sales surprise interacted with the Value Dummy. The coefficient for sales surprise is 0.002, the coefficient for sales surprise interacted with the value dummy is -0.001, and the adjusted R-square value is 0.008. Based on models one and two in table 3, we can see that for both earnings and sales surprise, the coefficient is less for Value firms and than Growth Firms. Combining 0.002 and -0.001 nets a coefficient of 0.001 for value firms for both earnings and sales surprise, which is half of the magnitude of the coefficients for earnings and sales surprise for growth firms. Table 3 suggests that investors react more strongly (approximately twice as much) towards earnings and sales surprises for growth firms than value firms in the modern market. From Table 3 model 3, we can see that the coefficient of sales surprise interacted with the value dummy is negative, suggesting that investors place more importance on sales surprise for growth companies. On the other hand, the coefficient of expense surprise interacted with the value dummy is positive while the coefficient of expense surprise itself is positive. This suggests that investors have a weaker reaction towards expense surprise for value companies than growth companies.

5.   Conclusion

The research aims to investigate differential reactions of investors and the market to dollar surprises in revenues versus expenses, and assess if value and growth companies demonstrate distinct responses to sales and earnings surprises.

From table 1, we can see that over the course of two decades, the market has drastically changed. Value firms are no longer dominant, and growth firms take up the majority of the market. Similar to Ertimur et al. (2003), we can still see that at the median, earnings surprise, sales surprise are approximately centered at zero. In our table, we have the addition of three day return, which is not centered at zero, but at 2.0. In Table 2, we see that both analyst quarterly earnings and sales surprise are great predictors of three day return. We also see a stronger reaction towards sales surprise than expense surprise, when earnings surprise is broken into sales and expenses. What's different from Ertimur is that now the coefficient for earnings and sales surprise is relatively equal in magnitude and sign, while in Ertimur sales surprise had a larger coefficient tha earnings surprise. In table 3, the results of the regression show that investors react more strongly (approximately twice as much) towards earnings and sales surprises for growth firms than value firms in the modern market. While not equivalent in exact magnitude, this is equivalent with the findings in Ertimur, where investors are more indifferent towards earnings and sales surprise for value firms, and react more strongly towards earnings and sales surprise for growth firms. We also see that investors have a negative reaction towards expense surprise when earnings are broken down into sales and expense, and that the relative magnitude of the market reaction for expense surprise is stronger for growth companies than value companies.

With these differential reactions to earnings and sales surprises, as well as the specific reactions for growth and value firms, we can contribute to our understanding of earnings management. Firstly, it can provide insights into potential manipulation strategies employed by companies. By examining how investors and the market respond differently to earnings and sales surprises, we can identify patterns and behaviors that may indicate earnings management practices. For example, in Travis L. Johnson and Jinhwan Kim (2019), they find that firms with strong incentives tend to have predictable patterns in their earnings management behavior. Secondly, it helps in identifying the effectiveness of manipulation techniques. Differential reactions between growth and value firms can shed light on which types of companies are more successful in manipulating earnings. In Patricia M. Dechow, Richard G. Sloan and Amy P. Sweeney (1995) their study suggests the need for more powerful models to detect subtle cases of earnings management, and the inaccuracy of models when applied to firms with extreme financial performance.

Understanding differential reactions may aid in developing more effective detection models for earnings management.

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