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Is the market surprised by the surprise?

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Abstract

This study examines how the market reacts to earnings surprises with different characteristics such as future earnings prospects and historical surprises embedded in the earnings announced. We also explore the effect of corporate governance on market reaction to earnings information disseminated through earnings announcements. The sample comprises of 1,620 US firms for the period 2002 – 2016. Using a regression-based approach, the results reveal that the market reacts to earnings surprises, particularly, to their sign, magnitude, persistence, and the future earnings prospects. Moreover, these different characteristics of earnings surprises are more important for negative surprises than for positive surprises. Furthermore, we find evidence for the information transparency theory that earnings announcements are a relatively more important source of information for low corporate governance firms than for high corporate governance firms. Finally, historical earnings information is more relevant for low corporate governance firms, whereas prospective earnings information is more important for high corporate governance firms. This study contributes to the extant literature by revealing that the market does not only react to the magnitude/sign of the surprises but also to other additional characteristics of earnings surprises. The study also reveals that firm governance influences how the market reacts to earnings information announced. Consequently, managers should be mindful that strengthening firm corporate governance could improve investors' confidence in earnings announced.

JEL classification: G14, G30, M14

Keywords: earnings announcement, earnings surprise, market reaction, persistence, corporate governance

Paper Type: Research

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1. Introduction

Earnings announcements represent a vital information event whereby investors are communicated with regard to the performance of a firm. It is through these announcements that firms inform the investors if they have met the performance expectations investors have regarding the firm. Efficient market theories predict that share prices respond to earnings information announced by the firms, while empirical studies found that share prices indeed respond in accordance with the information released through earnings announcements. Ball and Brown (1968), Basu (1997), Lopez and Rees (2002), among others, find that the market reacts in accordance with the surprise, i.e., positively to news that earnings exceed market expectations (i.e., positive surprises) and negatively to news that earnings fall short of market expectations (i.e., negative surprises). However, Chen and Tiras (2015) find that the market reacts negatively to a positive earnings surprise in 42 percent of the cases and positively to a negative earnings surprise in 41 percent of the cases. To these puzzling results, some studies point to over- or under-reaction by the market (Alwathnani *et al.*, 2017) whereas other studies delve into information other than the earnings surprise that is inherent in the announcement. In this spirit, Kama (2009) finds that the influence of earnings surprise on stock returns is lower in firms whose earnings information is less precise. In those cases, investors would consider, in addition to the earnings surprises, other information associated with the surprises such as their corresponding sign (Basu, 1997; Kasznik and McNichols, 2002; Lopez and Rees, 2002). Boudt *et al.* (2018) highlight that the additional information inherent in the earnings surprises could prove to be informative for investors. Confirming the role played by the additional information, Hart (2018) shows that the form of bad news forecasts is more informative to investors (i.e., their reaction is stronger) and analysts (i.e., their earnings revisions are larger) than their specific values.

In parallel, studies have shown that firms' governance influences the information environment of the firms. Thus, the precise reaction to announcements depends on the accuracy of the information being released (Demski and Feltham, 1994), which in turn is affected by the firms' governance. Kanagaretnam *et al*. (2007) show that good governance promotes regular communication of relevant and reliable information to the shareholders. Kamel and Elbanna (2012) and Lau *et al*. (2016) explain that the presence of strong corporate governance constraints the distortion of earnings, thereby resulting in reliable and better-quality announcements regarding earnings. Karamanou and Vafeas (2005) show that firms with strong governance are heedful regarding their accountability towards provision of reliable accounting information to investors. Recently, Markarian and Michenaud (2019) show that opaque firms tend to announce positive earnings surprises. All in all, governance literature highlights the importance of considering firms' information environment when reacting to firms' earnings announcements.

We contribute to the literature in three ways. First, we investigate how the market reacts to the various information inherent in the earnings surprises; in particular, we investigate how the market reacts to the magnitude of the surprise, the historical surprise information, and the future earnings prospect of the firms in addition to the sign of earnings surprises. Secondly, we contribute to the governance literature by shedding light on the effects of firms' governance on the relative importance of various information inherent in the earnings surprises. Finally, we shed new light on the market efficiency surrounding earnings announcements.

We find that other information inherent in the earnings surprise is more important in the case of a negative surprise than it does in the case of a positive surprise. In general, earnings announcements are a relatively more important source of information for low corporate governance firms than for high corporate governance firms. Furthermore, historical earnings

information is more important for low governance firms, whereas prospective earnings information is more important for high governance firms.

These findings have implications for investors, firms, and regulators. Investors are interested in how to revalue or rebalance their portfolios when earnings are announced. From the firms' perspective, the findings here highlight the importance of managing the different characteristics of earnings surprises, especially in the case of negative earnings announcements. Moreover, corporate governance can be another facet for managers to strive to improve if the market were to react to firms' future prospect. For the regulators, this study provides a pointer for improving investors' confidence in the information firms disseminate by avoiding an opaque information environment in favor of a transparent market.

The remainder of the paper is structured as follows. Section 2 provides the hypotheses. In section 3, we explain the variables and methodology employed. Then in section 4, the results are explained. The paper ends in section 5 with the conclusion.

2. Hypotheses

Degeorge *et al*. (1999) and Barber *et al*. (2013) explain that when announced earnings differ from expectations, this can prompt positive or negative earnings surprises. Cornell and Landsman (1989) indicate that positive earnings surprises are concomitant with an increase in share prices, whereas negative earnings surprises are connected to a fall in share prices. To the extent that positive earnings surprises entail surpassing earnings anticipations of the market, they consequently foster believability with investors and analysts and engender a rise in share prices or sustain them (Graham *et al.,* 2005; Johnson and Zhao, 2011). Furthermore, Butler and Han (1994) explain that a positive earnings surprise can also be indicative of misjudgment of the firm's investment opportunities, which subsequently will be assimilated in the following

period and consequently result in an increase in returns and a rise in stock prices. Conversely, firms that fall short of analysts' expectations with a negative earnings surprise, experience a fall in share prices instead (Conroy *et al.*, 1998). Therefore,

H1: There is a positive relationship between market reactions and earnings surprises.

Several studies (Bartov *et al*., 2002; Kasznik and McNichols, 2002) have found evidence that investors' response to positive and negative earnings surprises is asymmetric. For instance, Lopez and Rees (2002) find that the market response to positive earnings surprises is stronger than the market response to negative earnings surprises, whereas Basu (1997) reports that the market responds more strongly to bad news than it does to good news. Cohen *et al*. (2018) explain that because bad news is usually deferred for as much as possible, consequently when it is eventually announced, the impact of the information will be more profound. However, Chen and Tiras (2015) find evidence that the market reacts negatively to a positive earnings surprise in 42 percent of the cases and positively to a negative earnings surprise in 41 percent of the cases. They explain that when there is other information that has not been reflected in earnings information, the market could have an opposite response to earnings announcements, and this can be exacerbated, especially if investors have doubts about the accuracy of the earnings information.

Therefore, we anticipate that:

H2: The market reaction depends on the different characteristics of earnings surprises.

Through a theoretical model, Demski and Feltham (1994) show that the magnitude of the returns around the announcement date depends on the accuracy of the public information with respect to the future value of the firm, and the extent to which information about the forthcoming public information is being impounded into prices. The model implies that information uncertainty plays a role in how the market reacts to earnings announcements. Similarly, Pevzner et al. (2015) also reveal that a fundamental factor that strongly influences the market's reaction to earnings announcements is the inherent reliability of the information, which is believed to be embedded in the quality of the financial report.

However, Cheng *et al*. (2019) explain that although it might be challenging to determine the characteristic quality of financial information, nevertheless, corporate governance can be seen as an apt representation, particularly since it affects the quality and quantity of financial information a firm discloses/communicates to investors. Furthermore, it has been documented in the literature that corporate governance encompasses the controls and procedures that exist to ameliorate the conflict of interests between management and shareholders, and ensure the disclosure of all relevant information to shareholders. Consequently, good corporate governance fosters the dissemination of reliable and better-quality announcements regarding earnings (Lin and Hwang, 2010; Brown *et al*., 2011; Haß *et al.*, 2014; Lau *et al*., 2016). Additionally, Gonzalez and Garcia-Meca (2014) indicate that better-governed firms are seen to provide more reliable value-relevant information, while Kanagaretnam *et al*. (2007) posit that firms with high corporate governance do not merely intensify the regularity of information, but augment the quality as well so that more precise earnings predictions are provided.

Consequently, for low corporate governance firms that provide little public information prior to earnings announcements, their earnings announcements are generally more informative, containing a relatively high level of new public information about the firms as postulated by

the information transparency theory.

Thus, we hypothesize that:

H3a: Market response to earnings surprises is stronger when low corporate governance firms make earnings announcements than when high corporate governance firms do it.

H3b: Market response to future earnings prospect is weaker in the case of low corporate governance firms.

H3c: Historical earnings surprises are more relevant in the case of low corporate governance firms.

3. Data and variables

Annual earnings announcement dates, the reported earnings per share (eps), the analysts' mean eps forecast on the day before the announcement date, and the analysts' revised eps forecast on the day after the announcement date are collected from Thomson Reuters Eikon (Eikon). Corporate governance data is obtained from ASSET4 database in Thomson Reuters (Asset4). The sample period is from January 2002 through December 2016.

Our initial sample consists of a total of 28,008 announcements by 2,123 U.S. companies. We require that each earnings announcement has a minimum of 60 observations available for a market model estimation. Further, similar to Barber *et al.* (2013), we exclude instances in which a firm makes two annual earnings announcements in the same calendar year. Next, we remove those announcements that have missing information on the reported eps, analysts' mean eps forecast on the day before the announcement, and/or analysts' revised mean eps forecast on the day after the announcement. Then, we exclude announcements for which Eikon

and Asset4 do not provide information on firm market value, market-to-book ratio, EBITDA, total assets, leverage, shareholdings, number of the analysts following a stock, and corporate governance. Finally, we eliminate observations with a negative market-to-book ratio. Applying these filters produced a final sample of 12,466 observations by 1,620 firms.

Dependent variable

Our dependent variable is the market reaction around earnings announcements, *Willret*, and it is constructed as in Williams (2015) where the excess return is the compound return for each firm and each announcement in excess of the compound market return over the same period.[1]

Independent variables

Our independent variables are defined on the basis of earnings surprises. Similar to Bouwman (2014) the earnings surprise for each firm *i* at time *t* is calculated as the difference between the reported eps and the market consensus eps forecast as proxied by the analysts' mean eps forecast on the day before the announcement day *t*. To obtain our variable (*ue*), we multiply the surprise per share by the number of outstanding shares and divide the resulting value by total assets at the beginning of the year.

[1] We also use two other alternative measures of abnormal returns. The results are qualitatively similar and are available upon request. The first alternative measure is a three-day cumulative abnormal return (*car*) that is centered on the annual earnings announcement day *t*. A market model is estimated using the returns for the period 253 days to 2 days before the announcement date. We require that a minimum of 60 observations is available for the model to be estimated. The second alternative measure is the excess return (*ret*) over the three days period centered on the announcement day *t* calculated as in Conrad *et al.* (2002). In this measure, raw returns for each firm and each announcement date are first summed across the event window. They are then netted with the market return over the same period to obtain the cumulative market-adjusted return for each firm over the annual announcement date.

Then, we differentiate the surprise to be either good or bad news. Variable *goodnews* takes the value of *ue* if *ue* is positive and zero otherwise. On the contrary, *badnews* takes the value of *ue* if *ue* is negative and zero otherwise.

We also include *prospect* defined as the difference between analysts' mean eps forecast on the day following the earnings announcement and the eps reported on the day of the announcement, scaled by the eps per share on the announcement day.

In addition, we focus on the magnitude of earnings surprises. *justbeat* is a dummy variable equal to 1 if $0<ue\leq 0.02$ and zero otherwise. *justmiss* is a dummy variable equal to 1 if $-0.02\leq ue<0$ and zero otherwise. *bigbeat* is a dummy variable equal to 1 if $ue\geq 0.08$ and zero otherwise. *bigmiss* is a dummy variable equal to 1 if $ue\leq -0.08$ and zero otherwise.

Finally, we take into account the persistence in earnings surprises. Ebaid (2011) indicates that persistence is generally seen as a qualitative feature of earnings, which can also be used to determine the reliability of future earnings. In this study, positive and negative surprises are categorized into different degrees of persistence. *persistencep1y* (*persistencen1y*) equals to 1 if the firm announces a positive (negative) surprise for the first time, and zero otherwise. *persistencep2y (persistencen2y*) equals to 1 if the firm announces a positive (negative) surprise for two years in a row, and zero otherwise. *persistencep3y* equals to 1 if the firm announces a positive surprise for three years consecutively, and zero otherwise. Figure 1 shows the percentage distribution of earnings surprise persistence. For example, in 40 percent of the cases, the announcement of a positive surprise is a one-time occurrence, while in 22 percent of the cases, the positive surprise recurs in the following year. Comparing positive surprise persistence to negative surprise persistence, Figure 1 shows that positive surprises tend to persist for longer as some firms announce a positive surprise for more than ten years in a row. Negative surprises, however, tend to occur for no more than six years in a row, while in more than 60 percent of the cases, a negative surprise is announced just for one year.

[Insert Figure 1]

Control and corporate governance variables

Our control variables are: firm size proxied by the natural logarithm of market capitalization (*lnmv*); growth proxied by the market-to-book ratio (*mtbv*); profitability proxied by the return on assets (*roa*); leverage proxied by the ratio of total debt to total assets (*debt ratio*); systematic risk proxied by the market beta deriving from regressing a company returns on market returns for the period 253 days to 2 days before the announcement date (*beta*); firm's return over the 250 trading days leading up to the 2 days before the earnings announcement (*momentum*); ownership proxied by the natural logarithm of the number of large shareholders whose shareholding is greater than 3 percent (*shareholding*) and firm coverage proxied by the natural logarithm of the number of the analysts following a stock (*lnanalyst*). Appendix A summarizes the variable definition.

Model

To formally test our first hypothesis, we use a regression-based approach. Our baseline regression model is

$$y_i = \beta_0 + \sum_{i=1..N;j=1..p} \beta_j X_{ij} + \varepsilon_i \quad i = 1, \dots, N; j = 1, \dots p \tag{1}$$

where y_i is our dependent variable for firm i, β_0 is the intercept of the model, $\boldsymbol{X}_{ij}$ corresponds to the jth explanatory variable of the model for firm i, ε_i is the random error with expectation 0 and variance σ^2 and β_j is a vector of coefficients to be estimated. More precisely, our dependent variable is the market reaction around earnings announcements, *Willret*, defined according to Williams (2015) or other two alternative measures. Our variables of interest are related to the characteristics of earnings surprises such as their sign (*goodnews* and *badnews*), their magnitude (*justbeat*, *justmiss*, *bigbeat,* and *bigmiss*), their persistence (persistence variables).

In addition, we also include our control variables. We use the Ordinary Least Squares (OLS) estimator to estimate the model in Equation 1.

To explore the effect of information transparency as implied by governance, we split our sample in two subsamples: the first subsample is composed of the firms with a quality of corporate governance higher than the mean industry corporate governance and the second subsample is composed of the firms with a quality of corporate governance lower than the industry mean corporate governance. About 59 percent of the sample firms have a corporate governance score above the industry mean. We then re-estimate equation (1) for each subsample.

4. Empirical results

Descriptive statistics

Table 1 shows a breakdown of the announcements by year and by industry. The number of the announcements is low in the early years of the sample period but, then, it is relatively evenly distributed across the years in the later part of the sample period. Most of the announcements in our sample are from firms in the industrial and financial sectors.

Table 2 reports descriptive statistics on the variables and shows that on average *Willret* is 0.42 percent. Generally, the magnitude of *goodnews* is greater than the magnitude of *badnews*: the mean of the first type of surprise is 0.21 percent and the mean of the second type of surprise is -0.15 percent. The average values for *lnmv* and *mtbv* suggest that firms in the sample are quite large and exhibit high growth.

Table 3 reports the correlations between our main variables. It shows that abnormal returns are positively correlated with surprises as well as the earnings prospects.

[Insert Tables 1, 2 and 3]

Multivariate analysis

Results from the estimation of equation (1) are summarized in Table 4. Model (1) shows that the market reacts to earnings surprises confirming our first hypothesis: there is a positive relationship between market reactions and earnings surprises. The results of our model (1) show that positive earnings surprises are concomitant with an increase in share prices (abnormal return is a positive 0.62 for one unit of positive surprise), whereas negative earnings surprises are connected to a fall in share prices (abnormal return is a negative 0.22 for a unit of negative surprise). The results also show that the market reaction is higher for positive surprises than for negative surprises in terms of both size and significance. This result is consistent with Lopez and Rees (2002) who found that the market's response coefficients for positive earnings are over three times higher than the market's response coefficients pertaining to negative earnings. If we take into account other characteristics of the earnings surprises (magnitude in model (2), persistence in model (3), and all features in model (4)), the results just described for good news persist. However, the negative market reaction to bad news becomes less significant. For instance, in model (2) the coefficient of *badnews* becomes less significant, while the coefficients of *bigmiss* (-0.0303) and *justmiss* (-0.0140) suggest that the negative market reaction is stronger for *bigmiss* than it is for *justmiss*. This also indicates that the market is reacting more to the seriousness of the bad news than to the news itself. Model (3) shows that the market reacts to the historical information such as the persistence of a negative/positive surprise. Overall, models (1) through (4) imply that the market reacts to the different characteristics of earnings surprises as well as the surprise itself.

Table 5 (Panels A and B) summarises the analyses on corporate governance. The absolute values of goodnews and badnews coefficients are higher for low corporate governance firms than for high corporate governance firms. This supports the information transparency hypothesis and our expectation that earnings announcements are more informative events for

low corporate governance firms than they are for high corporate governance firms as it incites a stronger market reaction in low corporate governance firms than it does in high corporate governance firms. The variable *prospect* is positive and significant in the case of high corporate governance firms suggesting that prospective earnings influence how the market reacts to earnings news in the case of high corporate governance firms, and that it plays a more important role in the case of high corporate governance firms than it does in the case of low corporate governance firms. For example, Model (5) shows that one unit of prospective earnings generate 0.11 percent abnormal return in high corporate governance firms but not in the case of low corporate governance firms in Model (6). In Model (11), earnings prospects of high corporate governance firms generate 0.09 percent abnormal return, while in Model (12), earnings prospects of low corporate governance firms generate only about half the reaction as they do in the case of high corporate governance firms. This might also be indicative of the market's confidence in the reliability of the earnings information and prospects of high corporate governance firms.

On the other hand, Models (9) through (12) show that the absolute coefficient value of negative persistence variables are larger for low corporate governance firms than those of high corporate governance firms. For instance, the absolute coefficient value of *persistencen1y* (*persistencen2y*) is 0.0328 (0.0350) for low corporate governance firms, while the corresponding value is 0.0259 (0.0173) for high corporate governance firms. Thus, historical information provided through the persistence of negative earnings surprises is more relevant for low corporate governance firms than it is for high corporate governance firms. The relative less importance of prospective earnings and relative more importance of historical information for low corporate governance firms support hypotheses *H3b* and *H3c*. Therefore, the results suggest that firms' governance can affect how the market interprets the information that firms disseminate.

[Insert Tables 4 and 5]

5. Conclusions

We investigate how the market reacts to the different characteristics of earnings surprises, the future earnings prospects and the historical surprise information. Finally, we study how corporate governance influences the way the market reacts to the earnings announced.

We find that there exists a positive relationship between market reactions and earnings surprises, indicating that positive earnings surprises lead to an increase in share prices and vice versa. Further investigations show that the market in the case of negative earnings surprises takes into consideration the different characteristics of earnings surprises. Consistent with the information transparency hypothesis, we find evidence that earnings announcements for low corporate governance firms are more informative events than they are for high corporate governance firms. A less transparent information environment of low corporate governance firms also leads to the market responding less to the prospective earnings and putting more weights on the historical earnings information.

Overall, our findings imply that market response to the earnings information announced by firms is influenced by the governance of the firms. The insinuation for firms is that since corporate governance plays an important role in market reactions to the firms' earnings information, managers should aim to strengthen their corporate governance. Moreover, for regulators, it can be taken as an indicator of how investor's confidence in announced corporate financial information can be improved. We highlight that this study only focuses on US firms due to divergences in country-level institutional factors, financial and legal environment practices/regulations, which might influence the informativeness of earnings and even corporate governance. Nevertheless, this paper provides a good starting point for research on this theme to be extended to other countries. Furthermore, we have explored here the implications of general governance practices on how the market reacts to earnings

announcements. Since certain aspects of governance such as audit practices or ownership structure may play a relatively more important role than others, future research could delve into the relative effect of different individual aspects of governance.

Additionally, the announcement on corporate refocusing is also an area of concern for investors since it impacts earnings. Would corporate governance influence the market reaction to these announcements too? We leave this aspect for future studies.

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Table 1: Sample breakdown by year and by industry.

This table provides an overview of earnings announcements across years and industries.

Year	N	%
2002	476	3.82
2003	515	4.13
2004	583	4.68
2005	612	4.91
2006	661	5.30
2007	737	5.91
2008	790	6.34
2009	800	6.42
2010	850	6.82
2011	925	7.42
2012	975	7.82
2013	1016	8.15
2014	1118	8.97
2015	1171	9.39
2016	1237	9.92
Total	12466	100

Year	N	%
Basic Materials	640	5.13
Consumer Goods	1223	9.81
Consumer Service	1621	13.00
Financials	2862	22.96
Health Care	1073	8.61
Industrials	2671	21.43
Oil & Gas	662	5.31
Technology	1070	8.58
Telecommunications	113	0.91
Utilities	531	4.26
Total	12466	100

Table 2: Descriptive statistics.

This table reports descriptive statistics on the variables. Appendix A contains detailed definitions of the variables. The sample period is from January 2002 through December 2016.

Variable	**N**	**mean**	**sd**	**min**	**max**
Willret	12466	0.0042	0.0670	-0.2746	0.2366
goodnews	12466	0.0021	0.0089	0.0000	0.4481
badnews	12466	-0.0015	0.0094	-0.3615	0.0000
prospect	12466	0.0728	3.3333	-180.6150	98.9290
justbeat	12466	0.2113	0.4082	0.0000	1.0000
justmiss	12466	0.1142	0.3180	0.0000	1.0000
bigbeat	12466	0.1901	0.3924	0.0000	1.0000
bigmiss	12466	0.1116	0.3149	0.0000	1.0000
persistencep1y	8454	0.1128	0.3164	0.0000	1.0000
persistencep2y	8454	0.2214	0.4152	0.0000	1.0000
persistencep3y	8454	0.1205	0.3256	0.0000	1.0000
persistencen1y	8454	0.1625	0.3690	0.0000	1.0000
persistencen2y	8454	0.1040	0.3052	0.0000	1.0000
lnmv	12466	21.7708	1.3085	18.5964	25.6036
mtbv	12466	2.7922	2.2933	0.0300	12.4300
roa	12466	0.1107	0.1018	-1.1831	1.4961
debt ratio	12466	0.2710	0.1768	0.0023	0.8705
beta	12466	1.0914	0.4176	-0.3089	2.8690
momentum	12466	0.0529	0.3872	-1.8578	1.3654
shareholding	12466	0.8499	0.5600	0.0000	2.3979
lnanalyst	12466	2.1986	0.7570	0.0000	3.8067

Table 3: Correlation matrix.

This table reports the correlation matrix between the variables.

	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Willret	1											
goodnews	0.0802	1										
badnews	0.0457	0.0386	1									
prospect	0.0153	0.0124	0.0054	1								
lnmv	-0.0164	-0.0809	0.1000	0.0015	1							
mtbv	-0.0005	0.0436	-0.0168	0.0128	0.2631	1						
roa	0.0694	-0.0556	0.1346	0.0261	0.2013	0.2448	1					
debt ratio	-0.0179	0.0125	-0.0558	-0.0002	0.0474	0.1436	-0.044	1				
beta	0.0242	0.0441	-0.0396	-0.0128	-0.1386	-0.052	-0.122	-0.003	1			
momentum	0.0119	-0.0058	0.0456	0.0361	0.0748	0.1106	0.1568	-0.069	-0.044	1		
shareholding	-0.0010	0.0258	-0.0188	-0.0235	-0.1949	-0.007	-0.092	0.0908	0.0879	-0.015	1	
lnanalyst	0.0077	-0.0306	0.0799	0.0014	0.6174	0.1977	0.1059	-0.05	0.0648	0.0002	-0.097	1

Table 4: Multivariate models.

This table summarizes estimation results from Equation (1). Refer to Appendix A for the definition of the variables.

	Model (1)			**Model (2)**			**Model (3)**			**Model (4)**		
Variables	coeff.	SE	sign.	coeff.	SE	sign.	coeff.	SE	sign.	coeff.	SE	sign.
constant	0.0428	0.0137	***	0.0524	0.0140	***	0.0451	0.0181	**	0.0556	0.0183	***
goodnews	0.6205	0.1629	***	0.2486	0.0996	**	0.4812	0.1386	***	0.2728	0.1132	**
badnews	0.2220	0.1050	**	-0.1411	0.0802	*	-0.0205	0.1034		-0.2038	0.1029	**
prospect	0.0002	0.0002		0.0003	0.0002	*	0.0005	0.0002	***	0.0005	0.0002	***
justbeat	-			-0.0001	0.0016		-			-0.0061	0.0020	***
justmiss	-			-0.0140	0.0020	***	-			0.0031	0.0028	
bigbeat	-			0.0188	0.0018	***	-			0.0137	0.0021	***
bigmiss	-			-0.0303	0.0025	***	-			-0.0145	0.0033	***
persistencep1y	-			-			0.0075	0.0026	***	0.0059	0.0026	**
persistencep2y	-			-			0.0061	0.0020	***	0.0046	0.0021	**
persistencep3y	-			-			0.0090	0.0024	***	0.0074	0.0024	***
persistencen1y	-			-			-0.0323	0.0025	***	-0.0302	0.0028	***
persistencen2y	-			-			-0.0229	0.0028	***	-0.0195	0.0031	***
lnmv	-0.0025	0.0007	***	-0.0029	0.0007	***	-0.0030	0.0008	***	-0.0035	0.0008	***
mtbv	-0.0009	0.0004	***	-0.0008	0.0003	**	-0.0005	0.0004		-0.0004	0.0004	
roa	0.0514	0.0106	***	0.0464	0.0094	***	0.0371	0.0108	***	0.0383	0.0106	***
debt ratio	-0.0033	0.0038		-0.0016	0.0037		-0.0034	0.0045		-0.0038	0.0046	
beta	0.0038	0.0018	**	0.0038	0.0018	**	0.0034	0.0022		0.0032	0.0022	
momentum	-0.0023	0.0026		-0.0048	0.0026	*	-0.0053	0.0032		-0.0061	0.0032	*
shareholding	-0.0024	0.0013	*	-0.0026	0.0013	**	-0.0024	0.0016		-0.0025	0.0016	
lnanalyst	0.0023	0.0011	**	0.0023	0.0011	**	0.0023	0.0014	*	0.0029	0.0014	**
Industry dummies	Yes			Yes			Yes			Yes		
Year dummies	Yes			Yes			Yes			Yes		
R-squared	0.0224			0.0586			0.0719			0.0843		
N	12466			12466			8454			8454		

Table 5: High corporate governance firms versus low corporate governance firms.

Equation (1) is re-estimated for each subsample. Subsamples were formed based on the industry mean corporate governance. High corporate governance group consists of firms that have a corporate governance score above the industry mean, while low corporate governance group consists of firms that have a corporate governance score below the industry mean.

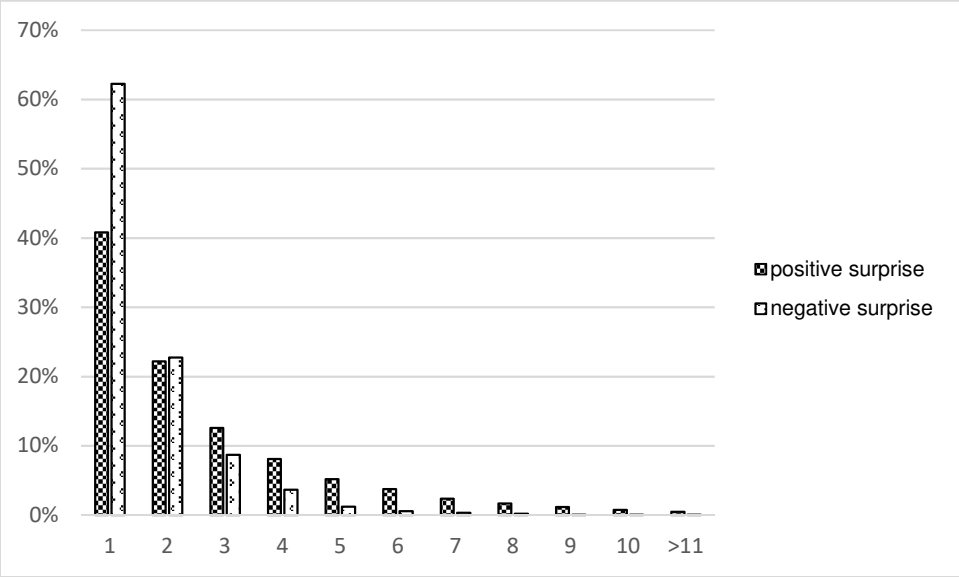
Panel A

	Model (5)			**Model (6)**			**Model (7)**			**Model (8)**		
	high corporate governance			*low corporate governance*			*high corporate governance*			*low corporate governance*		
Variables	coeff.	SE	sign.	coeff.	SE	sign.	coeff.	SE	sign.	coeff.	SE	sign.
constant	0.0063	0.0283		0.0775	0.0346	**	0.0052	0.0282		0.0778	0.0344	**
goodnews	0.7450	0.2562	***	1.5053	0.3140	***	0.3995	0.0942	***	0.8502	0.2530	***
badnews	0.2548	0.1758		0.4292	0.2128	**	-0.0901	0.1603		-0.2218	0.2379	
prospect	0.0011	0.0004	***	0.0001	0.0002		0.0012	0.0004	***	0.0002	0.0002	
justbeat	-			-			-0.0007	0.0024		-0.0012	0.0033	
justmiss	-			-			-0.0086	0.0028	***	-0.0136	0.0043	***
bigbeat	-			-			0.0179	0.0027	***	0.0160	0.0034	***
bigmiss	-			-			-0.0255	0.0044	***	-0.0267	0.0048	***
persistencep1y	-			-			-			-		
persistencep2y	-			-			-			-		
persistencep3y	-			-			-			-		
persistencen1y	-			-			-			-		
persistencen2y	-			-			-			-		
lnmv	-0.0001	0.0012		-0.0042	0.0016	***	-0.0002	0.0012		-0.0041	0.0016	***
mtbv	-0.0005	0.0006		-0.0012	0.0006	*	-0.0005	0.0006		-0.0009	0.0006	
roa	0.0312	0.0236		0.0816	0.0169	***	0.0346	0.0234		0.0726	0.0165	***
debt ratio	-0.0178	0.0071	**	0.0052	0.0069		-0.0136	0.0071	*	0.0038	0.0068	
beta	0.0050	0.0031		0.0024	0.0036		0.0046	0.0031		0.0027	0.0036	
momentum	-0.0007	0.0050		-0.0026	0.0052		-0.0029	0.0050		-0.0042	0.0051	
shareholding	-0.0009	0.0021		-0.0049	0.0026	*	-0.0008	0.0021		-0.0048	0.0026	*
lnanalyst	-0.0035	0.0020	*	0.0055	0.0022	**	-0.0033	0.0020	*	0.0056	0.0023	**
Industry dummies	Yes			Yes			Yes			Yes		
Year dummies	Yes			Yes			Yes			Yes		
R-squared	0.0259			0.0549			0.0566			0.0828		
N	4343			3005			4343			3005		

Panel B

	Model (9)			Model (10)			Model (11)			Model (12)		
	high corporate governance			*low corporate governance*			*high corporate governance*			*low corporate governance*		
Variables	coeff.	SE	sign.	coeff.	SE	sign.	coeff.	SE	sign.	coeff.	SE	sign.
constant	0.0258	0.0374					0.0288	0.0377		0.0935	0.0463	**
goodnews	0.5675	0.1925	***	1.5606	0.4353	***	0.3964	0.1124	***	0.9317	0.4295	**
badnews	-0.0977	0.1903		0.1037	0.2510		-0.2435	0.2225		-0.1560	0.2831	
prospect	0.0009	0.0003	**	0.0004	0.0001	***	0.0009	0.0003	**	0.0004	0.0002	***
justbeat	-			-			-0.0069	0.0029	**	-0.0064	0.0044	
justmiss	-			-			0.0072	0.0043	*	0.0022	0.0057	
bigbeat	-			-			0.0135	0.0032	***	0.0114	0.0043	***
bigmiss	-			-			-0.0106	0.0057	*	-0.0141	0.0063	**
persistencep1y	0.0038	0.0044		-0.0025	0.0050		0.0030	0.0043		-0.0043	0.0050	
persistencep2y	0.0053	0.0028	*	-0.0017	0.0043		0.0040	0.0028		-0.0033	0.0044	
persistencep3y	0.0089	0.0035	**	0.0030	0.0055		0.0078	0.0034	**	0.0015	0.0055	
persistencen1y	-0.0259	0.0036	***	-0.0328	0.0050	***	-0.0259	0.0045	***	-0.0308	0.0054	***
persistencen2y	-0.0173	0.0043	***	-0.0350	0.0058	***	-0.0157	0.0052	***	-0.0316	0.0061	***
lnmv	-0.0003	0.0014		-0.0052	0.0020	***	-0.0005	0.0014		-0.0055	0.0020	***
mtbv	-0.0003	0.0006		-0.0010	0.0007		-0.0003	0.0006		-0.0008	0.0007	
roa	0.0356	0.0187	*	0.0385	0.0208	*	0.0416	0.0188	**	0.0358	0.0206	*
debt ratio	-0.0161	0.0077	**	0.0062	0.0082		-0.0157	0.0079	**	0.0056	0.0082	
beta	0.0062	0.0035	*	0.0012	0.0047		0.0058	0.0035		0.0014	0.0047	
momentum	-0.0013	0.0061		-0.0016	0.0065		-0.0027	0.0061		-0.0019	0.0065	
shareholding	-0.0007	0.0024		-0.0033	0.0033		-0.0007	0.0025		-0.0033	0.0033	
lnanalyst	-0.0034	0.0023		0.0065	0.0030	**	-0.0031	0.0023		0.0073	0.0030	**
Industry dummies	Yes			Yes			Yes			Yes		
Year dummies	Yes			Yes			Yes			Yes		
R-squared	0.066			0.1026			0.0804			0.1121		
N	3115			2055			3115			2055		

Figure 1: Persistence of earnings surprises.



Appendix A: Variable definition

Variable	Definition
Willret	The excess return computed as the compound return for each firm and each announcement in excess of the compound market return over the same period.
goodnews	It equals to the value of earnings surprise *(ue)* if *ue* is positive and zero otherwise. *ue* is the difference between the reported eps and the market consensus eps forecast as proxied by the analysts' mean eps forecast on the day before the announcement day *t*.
badnews	It equals to the value of earnings *surprise (ue)* if *ue* is negative and zero otherwise. *ue* is the difference between the reported eps and the market consensus eps forecast as proxied by the analysts' mean eps forecast on the day before the announcement day *t*.
prospect	The difference between analysts' mean eps forecast on the day following the earnings announcement and the eps reported on the day of the announcement, scaled by the eps per share on the announcement day.
justbeat	A dummy equals to 1 if $0<ue\leq 0.02$ and zero otherwise.
justmiss	A dummy equals to 1 if $-0.02\leq ue<0$ and zero otherwise.
bigbeat	A dummy equals to 1 if $ue\geq 0.08$ and zero otherwise.
bigmiss	A dummy equals to 1 if $ue\leq -0.08$ and zero otherwise.
persistencep1y	A dummy equals to 1 if the firm announces a positive surprise for the first time, and zero otherwise.
persistencep2y	A dummy equals to 1 if the firm announces a positive surprise for two years in a row, and zero otherwise.
persistencep3y	A dummy equals to 1 if the firm announces a positive surprise for three years consecutively, and zero otherwise.
persistencen1y	A dummy equals to 1 if the firm announces a negative surprise for the first time, and zero otherwise.
persistencen2y	A dummy equals to 1 if the firm announces a negative surprise for two years in a row, and zero otherwise.
lnmv	The natural logarithm of market capitalization.
mtbv	The market-to-book ratio.
roa	The return on assets.
debt ratio	The ratio of total debt to total assets.
beta	The regression slope coefficient from the market model estimated for the period from 253 days to 2 days before the announcement date.
momentum	The firm's return over the 250 trading days leading up to the 2 days before the earnings announcement.
shareholding	The natural logarithm of the number of large shareholders whose shareholding is greater than 3 percent.
lnanalyst	The natural logarithm of the number of analysts following a stock.