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Why Do Firms Release Profit Warnings?

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Abstract

Over the last decade, an increasing number of traded companies have decided to release profit warnings (PWs). The aim of this paper is to determine the motives that influence the decision of managers to disclose or withhold bad news. Accordingly, we model the warning decision by a logit model. Based on a sample of 3254 PWs issued by US and European firms over the period 2000–2015, we find that the exposure to potential litigation costs is an important incentive for the decision to issue a warning. We also show that the firms that disclose PWs are those characterized by a large size, greater analyst coverage, low leverage, and high quality of auditing. However, it seems that managers of firms that are in financial distress and with important institutional shareholders tend to withhold bad news. This situation is strengthened when managers have greater incentives (stock options grants) to avoid a decline in the stock price.

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1. Introduction

In this study, we investigate the motives that incite managers to voluntarily disclose bad news, especially profit warnings (PWs). The existing literature provides mixed results as to whether managers prefer to disclose or withhold bad news. Previous studies show that there are costs and benefits associated with the voluntary disclosure of bad news. On the one hand, Skinner (1994), Kasznik and Lev (1995), Field et al. (2005) and Billings and Cedergren (2015) assume that managers have greater incentives to preempt bad news disclosure to avoid litigation costs and reputational risks. On the other hand, managers may have motives to withhold bad news. Verrecchia (2001) highlight that voluntary disclosure may have some costs as it reveals proprietary information to competitors. Kothari et al. (2009) assume that career concerns and personal financial benefits (reduction in the value of stock options, lower bonus, etc.) may induce managers to withhold bad news, with the hope that subsequent corporate events will allow them to dilute or bury the bad news. Bao et al. (2019) show that managers are motivated to withhold bad news, as it avoids declines in the stock price.

International disclosure regulations on the dissemination of price-sensitive information (Regulation Fair Disclosure in the United States, the Market Abuse Directive in the European Union, among others) require that when a listed firm becomes aware that its earnings will be significantly less than the analyst earnings forecasts established by a non-dispersed market consensus, that company should issue a PW to inform the market participants about the likely impact for at least two reasons. First, the PW ensures the medium-term credibility of the accounting information communicated by the firm. Second, market participants, especially shareholders and financial analysts, do not like to receive unexpected bad news, which may explain why over the last decade an increasing number of listed firms have been choosing to announce PWs. However, given that PW releases merely serve to anticipate the official financial report of lower earnings, this paper addresses the question of particular interest: why do firms bother to provide any warning of negative earnings surprise at all? The prospect of surprising investors, particularly by disappointing them with large unexpected negative earnings associated with higher risks of large negative stock returns, presents managers with an announcement dilemma of whether to warn or not.

There are several motivations for our focus on PW disclosure. First, several studies show that PW is an important information source for investors, one which leads to a strong market reaction. On the one hand, Libby and Tan (1999) and Aubert and Louhichi (2015) show that financial analysts revise their forecasts around a PW release. On the other hand, Helbock and Walker (2003) and Bulkley and Herrerias (2005) highlight a significant decline in the stock price after the issuance of a PW. Second, releasing a PW release is at the discretion of the managers, which impacts the firm's information environment. Third, keeping silent when facing an earnings disappointment is a source of litigation risks, as class-action lawsuits can allege that managers made false or misleading statements and/or failed to disclose adverse material information in a timely manner to the market, resulting in the firm's stock price being artificially inflated (Billings and Cedergren, 2015; Bao et al., 2019).

Our findings make an important contribution to the literature on the decision to disclose a PW, in several aspects. First, the specific purpose of this piece of research is to report on research concerning the determinants of traded firms to disclose (or not to disclose) profit warnings. To make financial markets informationally efficient, firms must generally disclose warnings to reduce information asymmetry and to enable market participants to correctly assess the value the firms. Consequently, our findings might inspire future research on voluntary disclosures. Second, our empirical findings indicate that the avoidance of shareholder lawsuits is an important motive for announcing profit warnings. Skinner (1994) had argued that the threat of lawsuits arising from large negative earnings surprises provide managers with incentives to pre-disclose the information in order to reduce litigation costs.

Third, our study is of great interest for academics, regulatory authorities as well as firms, analysts or investors who can better understand the motives for the managerial decision to issue PW statements and how to trade around those announcements. As a result, our research fills a gap in the literature by modelling the decision to issue a PW.

The remainder of this paper is organized as follows. Section 2 reviews the related literature and develops our hypotheses. Section 3 describes the data collection and the research design. Section 4 presents our empirical findings. Section 5 concludes.

2. Related papers and hypotheses development

The aim of our paper is to examine the attributes that influence the decision to issue a PW or not. Prior papers have documented that there are many motivations for firms to disclose bad news. First of all, issuing a PW may prevent a significant decline in the stock price, as the announcement will prepare investors for the earnings disappointment prior to the official earnings announcements. The second reason is to avert the legal liability and lawsuit costs that may lead a company to pay significant amounts for litigation if it fails to disclose the bad news (Skinner, 1994; Billings and Cedergren, 2015; Bliss et al., 2018). The third motivation is to maintain the reputation of the firm and sustain good communications with the public. Another reason is related to the regulatory environment. In some countries, firms are mandated to issue a PW if the company's earnings are less than market expectations and its disclosure may significantly affect its market capitalization. The violation of this regulation would result in the payment of substantial financial penalties. In the following we will detail our hypotheses concerning the factors that induce firms to disclose or withhold bad news.

1) Litigation costs

Empirical evidence provides conflicting results on whether voluntary disclosure of the bad news prior to scheduled earnings announcements deters or triggers litigation. On the one hand, Francis et al. (1994) and Skinner (1997) find that preemptive disclosures do not preclude lawsuits. On the other hand, Skinner (1994), Field et al. (2005) and Billings and Cedergren (2015) highlight that voluntary disclosures reduce the likelihood of litigation. More specifically, they show that bad news warnings do not trigger litigation and may avoid certain types of litigation. The intuition behind this hypothesis is that withholding information generates potential specific costs that the management must take into account. Rational investors know that the manager holds information that does not want to communicate, and will directly interpret withholding information as bad news. The above empirical observations lead to our first hypothesis:

H1: Litigation costs increase the likelihood of PW release.

2) Firm size

Several papers find a positive association between firm size and voluntary disclosure. According to Kasznik and Lev (1995), large firms are encouraged to disclose more information as they are more exposed to litigation costs than small firms. Empirical studies confirm this intuition as they show that large firms disclose frequently information with high quality (Lakhal, 2005; Clinch et al., 2019; Tsang et al., 2019). Another corpus of studies highlights that large firms tend to disclose more earnings forecasts and earning pre-announcements (Lang and Lundholm, 1993, Soffer et al., 2000).

H2: There is a positive association between the size of the firm and the probability of issuing a PW.

3) Analyst coverage

Waymire (1984) argues that large firms communicate more voluntary disclosure as they are followed by a large number of financial analysts. Ajinkya et al. (2005) and Tsang et al. (2019) give empirical evidence that firms with a high level of analyst coverage tend to make voluntary disclosures. Then, we expect a positive association between issuing a PW and the level of analyst coverage.

H3: The number of analysts following the firm is positively associated with PW release.

4) Institutional Ownership

The empirical literature provides evidence of a significant relation between voluntary corporate disclosure and the ownership structure. In fact, institutional owners generally hold large blocks of shares and can influence the decision of managers whether to issue a warning or not. Bushee and Noe (2000), Ajinkya et al. (2005), Lakhal (2005) and Bao et al. (2019) found that institutional ownership is positively associated to a high level of discretionary disclosure. These authors argue that institutions continuously demand financial information from companies and firms yield to this pressure from this category of investors by issuing more frequent earnings guidance (e.g. managerial forecasts). We expect that institutional investors will be favorable to a better voluntary disclosure practice, which leads to our fourth hypothesis:

H4: There is a positive association between institutional shareholdings and the issuing of PWs.

5) Leverage

Lang and Lundholm (1993), Healy et al. (1999) and Tsang et al. (2019) find a positive association between the level of debt and the quality of voluntary disclosure. In fact, the agency theory assumes that bondholders will require more information disclosure and transparency from the firm. According to Jensen and Meckling (1976), firms with higher leverage will have higher agency costs. As a result, voluntary disclosures play an essential role in such leveraged companies, as they mitigate agency costs by reassuring creditors that management and shareholders will not bypass their covenant claims. Therefore, we infer that highly-leveraged firms will withhold less information and accordingly, lenders will push the firm to produce the information that they need to evaluate the firm and induce managers to voluntarily disclose bad news.

H5: There is positive relation between the degree of leverage and the announcements of PWs.

6) Financial distress

Financially distressed firms are characterized by a higher risk of bankruptcy and in turn are less likely to voluntarily disclose bad news. Helbok and Walker (2003) highlight a lower probability of survival of non-warning firms. Ben Amar and Zeghal (2010) find that financially distressed firms disclose less financial information than healthy firms. According to Holder-Webb and Cohen (2007), managers of poorly performing firm may restrict the information content of the disclosure so as not to announce bad news. We expect that the disclosure decision can be impacted by managerial perception about financial distress (Helbok and Walker, 2003). Therefore, we expect a negative relation between financial distress and voluntary disclosure.

H6: There is a negative association between financial distress and the probability of issuing a PW.

7) Stock options

Aboody and Kasznik (2000) show that CEOs make opportunistic voluntary disclosure decisions that maximize their stock option compensation. Nagar et al. (2003) show that voluntary disclosures are associated with managers' incentives based on stock prices. Lakhal (2005) finds a positive relationship between stock option plans and voluntary disclosures. Kothari et al. (2009) highlight that managers withhold bad news up to a certain threshold. Managers delay releasing bad news in the hope that some good news will dilute or bury the bad news. We can predict that managers would prefer to only release information which will increase the current value of the firm, and to withhold bad news. This intuition leads to the following hypothesis:

H7: There is a negative association between stock options compensation and the probability of disclosing a PW.

8) Audit quality

Statutory auditing as a monitoring mechanism helps mitigate or reduce information asymmetry between market participants and managers, which mitigates agency concerns. We argue that larger audit companies are more likely to achieve this goal. DeAngelo (1981) documents that large audit firms are more independent than small audit firms and encourage firms' efforts to disclose information to financial markets. As a result, we hypothesize that being audited by one of the 'Big 4' will encourage listed corporations to release PWs instead of withholding information (Tsang et al., 2019). Also, to maintain their reputation, audit firms will have a greater demand for higher audit fees. Consequently, we use the following two measures for audit quality: 1) a dummy variable equal to 1 if the audit firm is one of the Big 4 and zero otherwise; 2) the total amount of audit fees scaled by total assets. As the two variables are very correlated and provide similar results, we report only results with the audit fees proxy.

H8: There is a positive association between the audit quality and the probability of issuing PWs.

3. Data and methods

3.1. Data selection

The aim of this paper is to investigate the determinants that influence the decision to issue a PW or not, for an international firm sample over the period 2000–2015. To conduct our empirical study, we collected all the PWs recorded in the FactSet database. We then removed the observations for which we do not have all the variables used in our study. To avoid biases in the consensus of forecasts, we have retained only firms followed by at least three analysts. Finally, to ensure that each region has an adequate level of firm coverage, we restricted our sample to PWs issued by firms listed in the European and US markets. In fact, for the other regions we don't have sufficient observations (for example there are only 227 PWs recorded for firms listed in the Asian markets). Our final sample is composed of 3254 PWs, of which 1467 (45%) are issued by European firms and 1787 (55%) by US firms.

Our study requires the constitution of a matched sample. The matched sample is composed of firms that have faced a material earnings shortfall but didn't release a PW. Several criteria have been tested (see the robustness check section), but the results presented in this paper are based on the criterion according to which "the firms included in the matched sample are those whose earnings are lower than a non-dispersed analyst forecasts (EPS negative error is higher than 20% and EPS standard deviation is lower than 10%), but they didn't disclose a PW during the corresponding year".

3.2. Logit Model

To determine the factors that influence the decision to issue a PW, we run the following logit model:

$$PW_{i,t} = \alpha_0 + \alpha_1 Litigation_{i,t} + \alpha_2 Size_{i,t} + \alpha_3 Coverage + \alpha_4 Institutional + \alpha_5 Leverage + \alpha_6\ Z\text{-score} + \alpha_7 Option + \alpha_8 Audit + \alpha_9 Control + \varepsilon_{it}$$

i) *PW* is our dependent variable, which takes the value 1 if firm *i* discloses a PW in year *t* and zero otherwise.
ii) *Litigation*: We follow Kazsnik and Lev (1995) and Tsang et al. (2019), as we proxy the litigation costs by a dummy variable which takes 1 for high tech firms and zero otherwise. In fact, empirical evidence shows that technological firms are more exposed to litigation than other firms, and may hence disclose more to avoid litigation costs.
iii) *Size*: As recommended by Tsang et al. (2019), we use the logarithm of firm's book value of total assets as a measure for the firm size.
iv) *Coverage*: The number of analysts following the firm.
v) *Institutional*: The percentage of shares held by institutional investors at the end of the year.
vi) *Leverage*: Is the leverage ratio computed as the ratio of total debt to total assets.
vii) *Z-score*: We use the *Z*-score as proxy for financially distress. The higher the score, the lower is the probability of bankruptcy.
viii) *Option*: A dummy variable which equals 1 if firm *i* grants stock options to its directors in a given year and 0 otherwise.
ix) *Audit*: We use two measures for audit quality: 1) a dummy variable equal to 1 if the audit firm is one of the Big 4 and zero otherwise; 2) the amount of audit fees scaled by total assets. As the two variables are very correlated and provide similar results, we report only results with the audit fees proxy.
x) *Control*: Taking into account the existing literature, we introduce some other variables in our model, to control firm characteristics that may influence firms' voluntary disclosure. These variables include: an indicator for negative earnings (loss), an indicator for the existence of accounting restatements (restatement), and the firm's market-to-book ratio (MTBR).

Detailed definitions of all variables are given in Table 1. Also, we have checked the correlation between the independent variables to ensure that there is no multicollinearity bias.

4. Results

4.1. Univariate analysis

Table 2 reports descriptive statistics for the sample of firms that have issued a PW (Panel A) and the matched sample of non-warning firms (Panel B). From this table and according to the parametric (T-test) and non-parametric (Z-test) difference of means tests, we can see that Panel A is composed of more firms included in the high tech sector characterized by high litigation costs. Also, the size and the number of analysts following firms of Panel A are higher than for the firms of Panel B. However, it seems that warning firms have lower levels of debt, of institutional ownership and of stock options compensation than non-warning firms. Moreover, we notice that warning firms have a generally better financial situation, as measured by the *Z*-score, and a higher quality of auditing than those in the non-warning sample. Finally, the difference of means value between Panel A and Panel B for the accounting restatement and the market to book is not statically significant. To confirm this

preliminary univariate analysis, in the following section, we will present the results of the estimation of the logit model.

Table 1. Definition of variables

Variable name	Definition
PW	The dependent variable, which is a dummy proxy taking a value of 1 if the firm issues a PW, 0 otherwise.
Litigation	Dummy proxy for litigation costs, which takes 1 for high tech firms and zero otherwise.
Size	Natural logarithm of the total assets on fiscal year.
Coverage	The number of analysts following the firm and participating in the EPS consensus forecast.
Institutional	The percentage of shares held by institutional investors at the end of the year.
Leverage	The leverage ratio computed as the ratio of total debt to total assets.
Z-score	The Z-score as proxy for financially distressed firms.
Option	Dummy variable which equals 1 if the firm i grants stock options to its directors and 0 otherwise.
Audit	We use two measures for audit quality: 1) a dummy variable equal to 1 if the audit firm is one of the Big4 and zero otherwise 2) the amount of audit fees scaled by total assets.
Loss	Dummy variable taking 1 if the firm reports a loss (EPS<0), 0 otherwise.
Restatement	Dummy for the existence of accounting restatements in a given year.
MTBR	Market-to-Book ratio as of 12/31st of the fiscal year.

Notes: This table provides the definition for each variable in the logit model.

4.2. Multivariate analysis

Table 3 reports the estimated coefficients of the parameters based on the logit model. This table indicates that the coefficient of the variable litigation costs is positive and significant at the 1% level, which shows that there is a positive relation between issuing a PW and litigation costs, and confirms our first hypothesis. Due to legal incentives to issue a PW when the firm faces an earnings shortfall, the likelihood of issuing a PW is greater for high tech firms. In fact, it is well documented that high tech firms are more exposed to a high risk of shareholder lawsuits (Kasznik and Lev, 1995; Tsang et al., 2019). These firms face a high risk of being sued as they are characterized by a high risk of extreme price movements with high potential losses for investors (Tsang et al., 2019). Also, Kasznik and Lev (1995) assume that these firms are characterized by aggressive accounting techniques and high levels of intangible assets. This result is in line with those of Skinner (1994), who assumes that the managers of high technology sector firms are encouraged to preempt bad earnings surprises as this strategy reduces litigation costs for two reasons. First, after the voluntary announcement of bad news it is more difficult for plaintiffs to argue that the firm withheld negative information. Second, when the managers disclose the negative earnings surprise early, they limit the period of nondisclosure and therefore minimize the damages that the plaintiff can claim (expected costs of the lawsuit). Overall, our results show that high tech firms listed in Europe or the US are characterized by a high probability of issuing a PW. This can be explained by the fact that these regions have highly litigious systems. On the one hand, the

accounting and financial environment in the US is heavily influenced by class action lawsuits (SEC Rule l0b-5). On the other hand, the adoption of the Market Abuse Directive in the European Union has induced firms to be more transparent.

Table 2. Univariate analysis

	Panel A : Warning firms				Panel B : Non-warning firms	
Variable	Mean	Median	Difference T-test	Difference Z-test	Mean	Median
Litigation	0.342	0.000	5.35***	5.33***	0.286	0.000
Size	7.361	7.208	16.77***	13.531***	6.620	6.513
Coverage	8.232	8.000	12.65***	10.37***	6.822	6.000
Institution	33.683	34.171	-10.04***	-10.17***	37.525	39.719
Leverage	0.215	0.182	-6.54***	-5.53***	0.262	0.214
Z-score	3.751	2.525	2.41**	3.29***	3.285	2.360
Option	0.233	0.000	-3.18***	-2.26**	0.368	0.000
Audit	0.005	0.004	11.44***	9.99***	0.003	0.002
Loss	0.266	0.000	-6.11***	-6.09***	0.330	0.000
Restateme	0.400	0.000	0.52	0.53	0.343	0.000
MTBR	3.516	2.866	-0.50	-0.46	3.813	2.979

Notes: This Table provides descriptive statistics on the dependent variables used in our regressions. Also, it reports the results of the difference of means T-test and Z-test for firms that have disclosed a PW compared to the matched sample of non-warning firms. ** denotes that the difference is significant at 5% level and *** denotes that the difference is significant at 1% level.

Table 3. Logistic Regression

Independent variable	Predicted sign	Coefficient	*p*-value
Intercept	?	-3.134***	0.000
Litigation	+	0.385***	0.008
Size	+	0.509***	0.000
Coverage	+	0.177**	0.049
Institutional	+	-0.016***	0.000
Leverage	+	-1.612***	0.000
Z-score	+	0.054***	0.000
Option	-	-0.519***	0.000
Audit	+	0.081***	0.006
Loss	-	-0.279**	0.020
Restatement	-	0.011	0.906
MTBR	-	0.001	0.418
McFadden's R^2		17.49%	

Notes: This Table presents the results of the estimation of the logit model. The dependent variable takes the value 1 if the firm issues a PW in a given year and 0 otherwise. *** and ** denote statistical significance at the 1% and 5% levels, respectively. Table 1 reports detailed definitions for all the variables used in this regression.

Table 3 shows also that in line with Hypothesis 2, there is a positive and significant (at the 1% level) relation between the size of the firm and the issuing of a PW. The larger the

firm, the higher the probability of issuing a PW. This confirms the positive association between the size of the firm and the quality and frequency of corporate disclosure (Lang and Lundholm, 1993). Also, this result is in line with the positive accounting theory of Watts and Zimmerman (1986), which supposes that large firms are inclined to announce bad news like PW to persuade the public that they are not making excessive profits (Helbok and Walker, 2003).

As hypothesized (Hypothesis 3), we find a positive relation between the probability of issuing a PW and the number of analysts following the firm. In fact, financial analysts provide precise information and push the firm to produce the information that they need for firm evaluation.

The results reported in Table 3 do not confirm our fourth hypothesis. In fact, we find a negative association between institutional ownership and the likelihood of issuing a PW. This result shows that the presence of institutional investors doesn't induce managers to warn the market when they face an earnings shortfall. Therefore, institutional ownership does not lead to an improvement of the transparency and quality of the firm's voluntary disclosure practices.

Our results show a negative association between the leverage ratio and the likelihood of issuing a PW. This result is not in line with agency theory (Hypothesis 5), according to which lenders will require more disclosure of information. However, the above result confirms the empirical observations of Eng and Mak (2003), who find that firms with less debt had greater levels of disclosure, as leverage helps to control the free cash flow problem.

In line with Hypothesis 6, we find that the probability of issuing a PW decreases when the firm is in financial distress (low *Z*-score). It seems that the managers of distressed firms avoid voluntarily disclosing bad news that potentially causes a significant price decline. In this case, issuing a PW appears as a positive signal concerning the management quality. However, the fact of withholding bad news can be interpreted as a signal concerning the financial distress of the firm.

As formulated in Hypothesis 7, we find a negative association between stock option grants and the quality of voluntary disclosure. In fact, we find that the likelihood of issuing a PW decreases when the CEO compensation is based on stock options. This means that, in order to maximize their remuneration, managers are not inclined to voluntarily preempt the announcement of bad news before mandatory disclosure. They avoid the risk of a decline in the price of the stock which would reduce the value of their stock options remuneration.

We confirm also our Hypothesis 8, as we find a positive relation between the quality of the audit and the probability of issuing a PW. Therefore, our results show that firms audited by a renowned accounting auditor tend to have higher financial reporting quality.

Finally, for our control variables, we find that generally firms issue a PW when they realize a profit. However, we find a non-significant relation between the likelihood of issuing a PW and accounting restatements and market to book ratio.

To sum up, our results show that the exposure to potential litigation costs is an important incentive for the decision to issue a warning. We find that the firms that disclose PWs are those characterized by a large size, greater analyst coverage, low leverage ratio, and high quality of audit. However, it seems that managers of firms that are in financial distress, with an important level of institutional shareholding and that benefit from stock option grants, have a tendency to withhold bad news.

4.3. Robustness Check

The aim of this paper is to determine the factors that influence the decisions of managers to warn or not to warn when the firm faces a negative earnings disappointment. We have modeled the decision about warning by a logit model based on a sample of firms which have released a PW and a matched sample of those which have not. However, as we cannot observe the negative information that managers possess, our results depend on the criterion for the selection of the non-warning firms. The results presented in the present paper are based on the criterion according to which a firm is included in the matched sample if it faces an EPS shortfall higher than 20% with an analysts' forecast dispersion lower than 10%. To check the robustness of our results, we tested several other criteria as we vary the earnings shortfall from 10% to 50%. Results reported in Table 4 with a threshold of 50% for the earnings shortfall, show that our findings continue to hold.

We have also controlled for any bias caused by potential omitted variables, as we have run regression models with firm-fixed effects. To do so, we have excluded the variables that don't vary from one year to another (the high tech sector of activity as a proxy for litigation costs). It's important to mention that the logit regression is not suitable for fixed effects. For that reason, following Tsang et al. (2019), we have estimated the model as a linear probability model in the OLS framework. The results of this regression are reported in Table 5. This table shows that our findings are robust to the omitted variables bias.

Finally, we used an alternative econometric specification based on the number of profit warnings issued by each firm (count data dependent variable). For this purpose, we estimated a Poisson regression. Results reported in Table 6 are similar to those provided by the logit model.

Table 4. Robustness test: Logit regression with a threshold of 50% for the earnings shortfall

Independent variable	Predicted sign	Coefficient	*p*-value
Intercept	?	-2.707***	0.000
Litigation	+	0.728***	0.005
Size	+	0.667***	0.000
Coverage	+	0.076**	0.048
Institutional	+	-0.0175***	0.000
Leverage	+	-1.582***	0.000
Z-score	+	0.059***	0.000
Option	-	-0.572***	0.000
Audit	+	0.054**	0.042
Loss	-	-1.261***	0.000
Restatement	-	0.062	0.597
MTBR	-	0.008	0.335
McFadden's R^2		26.08%	

Notes: This Table presents the results of the estimation of the logit model. The dependent variable takes the value 1 if the firm issues a PW in a given year and 0 otherwise. *** and ** denote statistical significance at the 1% and 5% levels, respectively. Table 1 reports detailed definitions for all the variables used in this regression.

Table 5. Robustness test for omitted variables

Independent variable	Predicted sign	Coefficient	*p*-value
Intercept	?	-0.092	0.169
Size	+	0.099***	0.000
Coverage	+	0.037**	0.042
Institutional	+	-0.003***	0.000
Leverage	+	-0.221***	0.000
Z-score	+	0.009***	0.000
Option	-	-0.106***	0.000
Audit	+	0.0196***	0.004
Loss	-	-0.056**	0.030
Restatement	-	-0.007	0.716
MTBR	-	0.001	0.439
R^2		13.97%	

Notes: This Table presents the results of the estimation which controls for firm fixed effects. We have excluded the variables that don't vary from one year to another (the high tech sector of activity as a proxy for litigation costs). The dependent variable takes the value 1 if the firm issues a PW in a given year and 0 otherwise. *** and ** denote statistical significance at the 1% and 5% levels, respectively. Table 1 reports detailed definitions for all the variables used in this regression.

Table 6. Robustness check: Poisson regression

Independent variable	Predicted sign	Coefficient	*p*-value
Intercept	?	-2.295***	0.000
Litigation	+	0.145***	0.007
Size	+	0.249***	0.000
Coverage	+	0.074**	0.026
Institutional	+	-0.008***	0.002
Leverage	+	-0.941***	0.000
Z-score	+	0.0196***	0.000
Option	-	-0.234***	0.000
Audit	+	0.031 **	0.044
Loss	-	-0.220***	0.009
Restatement	-	-0.010	0.893
MTBR	-	0.004	0.532

Notes: This Table presents the results of the estimation of the Poisson model. The dependent variable takes the value 1 if the firm issues a PW in a given year and 0 otherwise. *** and ** denote statistical significance at the 1% and 5% levels, respectively. Table 1 reports detailed definitions for all the variables used in this regression.

5. Conclusion

The aim of this paper is to determine the motives that influence the decision of managers to disclose or withhold bad news. Based on a sample of 3254 PWs issued by US and European firms over the period 2000–2015, we find that the exposure to potential litigation

costs is an important incentive for the decision about issuing a warning. Therefore, our practical results indicate that the avoidance of shareholder lawsuits is an important motive for announcing profit warnings instead of withholding bad news. We show that the firms that issue PWs are those characterized by a large size, greater analyst coverage, low leverage ratio, and high quality of audit. However, it seems that managers of firms that are in financial distress and with important institutional shareholders, tend to withhold bad news. This situation is strengthened when managers have greater incentives (stock options grants) to avoid a decline in the price of the firm's stock. Finally, we conducted several tests that establish the robustness of the above results. Overall, our empirical study is of great interest for academics, regulatory authorities and practitioners who can better understand the managerial decision to issue PW statements.

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