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HOW DO INVESTORS PERCEIVE LONG-TERM GROWTH TARGETS AND FORECAST HORIZONS IN STRATEGIC PLANS? EVIDENCE FROM ITALIAN FIRMS

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We examine the information content of strategic-plans' long-term growth targets (SPLTG) and of strategic-plans' forecast horizons (SPFH). Using a sample of 224 strategic plan presentations by Italian listed companies during the period 2002–2018, we provide evidence that the SPLTG conveys credible and useful information to investors. We also assume that longer forecast horizons are more uncertain and we find that stock price reaction is negatively associated with long-term forecast horizons. Then, we investigate whether SPLTG presented in conjunction with long-term SPFH are perceived as less credible. The findings document that investors perceive long-term growth targets as credible regardless of the SPFH length. Our study contributes to the current debate on the use of strategic plans as comprehensive disclosure able to provide credible and useful information.

Keywords: Forecast horizon; information content; long-term growth forecast; strategic plan; value relevance.

JEL classification: G32, M41

1. Introduction

Previous research has explored the link between voluntary disclosure and stock price reaction in many ways. Despite a vast literature on the determinants, characteristics, and consequences of management earnings guidance and other voluntary disclosures (Bamber & Cheon 1998, Baginski *et al.* 2004, Hutton *et al.* 2003, Hirst *et al.* 2008, Faurel *et al.* 2018, Hart 2018), very few studies examine management earnings

forecasts over multi-year horizons (e.g. 3–5 years). This is because corporate communication with financial markets has been limited to the publication of short-term management earnings forecasts (Baginski *et al.* 2017).[a]

The question is, why are managers likely to issue only short-term forecasts? Bozanic *et al.* (2018) argue that managers are reluctant to issue quantitative long-term earnings forecasts when uncertainty is high. Since earnings forecasts can be issued in either qualitative or quantitative fashion (Hirst *et al.* 2008), managers issue more frequently qualitative long forward-looking statements (FLS) when uncertainty is higher (Bozanic *et al.* 2018). Faurel *et al.* (2018) also demonstrate that high demand for information on long-term earnings growth (LTG), motivated by growth-related information asymmetry, triggers management LTG forecast issuance.

Moving on to the Italian context, Baginski *et al.* (2017) argue that strategic planning mitigates the uncertainty perceived by investors.[b] Italian strategic plan presentations are typically considered major corporate communication events, more than analyst calls (Baginski *et al.* 2017). They convey value-relevant information to investors and are associated with an improvement in the accuracy of financial analysts' forecasts of annual earnings estimation.

However, there are still many open questions pertaining to the information content of strategic plan disclosures, particularly regarding performance targets and the forecast horizon. Our first research question is whether strategic plan's long-term growth targets (SPLTG) help investors to assess the firm's value and reduce valuation uncertainty. This uncertainty could be reduced if the information provided is credible and reliable. Previous research suggests that investors and analysts may be less willing to rely upon forecasts that are viewed as less credible or less precise. For example, Bamber & Cheon (1998) find a positive correlation between the precision of forecasts and the market response. However, the credibility of growth targets also depends on the forecast horizon's length. Generally, managers prepare strategic plans based on a 3-year forecast horizon or on a forecast horizon longer than 3 years (4 or 5 years). However, the longer the forecast horizon, the greater the uncertainty of achieving long-term operating growth targets and the more challenging the strategic plan. We therefore believe that strategic plans with long-term forecast horizons are perceived as less credible by investors because of the uncertainty implicit. Our second research question is how investors perceive the strategic-plans' forecast horizons (SPFH).

Finally, we investigate how investors perceive SPLTG in conjunction with the forecast horizon. We believe that SPLTG are more challenging to achieve in a long-term forecast horizon. Investors may perceive these targets as less credible because of

[a] As noted by Lu & Tucker (2012), instead of providing investors with earnings projections with a horizon of 1 year or less, managers should supply investors with a more complete information package on the firm's earnings and returns in the long-run.

[b] A strategic plan is a voluntary disclosure that contains both quantitative information (such as future performance targets), and qualitative information about the firm's strategy, the action plan for its implementation and the business environment in which the company operates (Baginski *et al.* 2017).

the uncertainty implicit in a long-term forecast horizon. Therefore, our final research question is whether the credibility of long-term growth targets is affected by forecast horizons.

Our findings provide evidence that long-term growth targets convey incremental information. This evidence suggests that investors perceive the SPLTG as credible and useful for investors. We also find that the SPFH is paramount for the plan's credibility. Investors perceive negatively the long-term forecast horizon (greater than 3 years), but they perceive as credible long-term growth even if the strategic plan is based on a long-term forecast horizon.

This paper builds upon prior studies that have investigated voluntary disclosure. Given the ongoing debate over the value of managerial earnings guidance, we contribute to the existing literature by providing evidence on the investors' perception of the strategic-plan performance growth targets also in relation to the length of the forecast horizon. This study should also inform managers of the consequence of issuing strategic plans with long-term forecast horizons.

The paper proceeds as follows. Section 2 illustrates the background and develops the research hypotheses. Section 3 describes the sample and the methodology. Section 4 describes the empirical findings. Section 5 reports a robustness check. Finally, Sec. 6 offers concluding remarks and suggestions for further research.

2. Background and Hypotheses Development

For several decades, voluntary management disclosure has been the focus of significant academic interest. As the usefulness of information depends on its relevance and credibility[c] (Sobel 1985), Mercer (2004) identifies four key factors used by investors in assessing the credibility of disclosure: management incentives to mislead, external and internal assurance, management credibility and disclosure characteristics. Regarding this last factor, Hirst *et al.* (2008) argue that managers may issue earnings forecasts in either quantitative or qualitative form. Given their relevance for investors, many studies have focused almost exclusively on quantitative earnings forecasts. This branch of research has dominated the existing literature due to the availability of data providers (Bozanic *et al.* 2018). Extensive literature shows that stock prices respond to the information conveyed in management earnings forecasts (e.g. Beyer *et al.*, 2010, Patell 1976, Penman 1980). Several studies examine the effect of the type of earnings forecasts. Pownall *et al.* (1993) examine the stock price reaction to point and range numeric forecasts. They do not find any significant market reaction to these different forecast types. On the contrary, Baginski *et al.* (1993) demonstrate that stock prices react more to point forecasts than less precise quantitative range guidance. Bamber & Cheon (1998) argue that forecasts that are more precise lead to stronger stock price reaction. Brockman & Cicon (2013) examine

[c]Our definition of credibility of strategy-related disclosure is consistent with previous studies (Jennings 1987, Pownall & Waymire 1989, Hutton *et al.* 2003), which defined it as the extent to which the disclosure is believable to investors.

the announcement effects of hard (quantitative) and soft (qualitative) information contained in management earnings forecasts. Consistent with previous studies, they confirm a positive correlation between the earnings surprise component of the announcement and the magnitude of the abnormal return. Rakow (2010) instead examines the association between the less precise forecasts and the cost of equity and finds a negative association between the precision of forecasts and the cost of equity. Baginski *et al.* (2011), using alternative forms of quantitative guidance, investigate the effect of forecasts form on analyst consensus revision. They document that more precise forecasts lead to greater revision of stock analysts' consensus on earnings per share (EPS) forecasts for a given level of unexpected earnings.

Because voluntary disclosure also contains qualitative information, another branch of research has studied non-earnings corporate disclosure. Many studies have focused on forward-looking non-earnings statements (Hoskin *et al.* 1986, Han & Wild 1991, Hutton *et al.* 2003, Baginski *et al.* 2004, Wasley & Wu 2006, Lu & Tucker 2012, Lobo *et al.* 2017, Hart 2018). However, Lu & Tucker (2012) note that very few studies exist on the usefulness of strategy disclosure, although information on firm strategy is useful to investors in assessing the firm's ability to respond to changes in the external competitive and regulatory environment (Palepu *et al.* 2000). Formal strategic planning can play a variety of important and useful roles peripheral to the strategy development and implementation process (Langley, 1988) and reduces the information asymmetry, as investors perceive it as credible and useful (Lu & Tucker, 2012). Moreover, regulators and standard setters also consider strategy-related disclosure highly relevant in their efforts to optimize information for capital markets (Gu & Li 2007). Concerning the usefulness of strategic plans disclosure, in the Italian context Baginski *et al.* (2017) document a positive stock price reaction to strategic plan releases. They also demonstrate that the quantitative and qualitative narrative disclosure about company strategy and action plans are value relevant for investors and analysts.

Strategic plans also provide future performance targets[d] accompanied with the implicit long-term growth. On this argument, several researchers have studied market response to analysts' stock recommendations combined with LTG forecasts (Barniv *et al.* 2009, Bradshaw 2004, Dechow & Sloan 1997, Jung *et al.* 2012, La Porta 1996, Liu & Jacob 2000), while others (Claus & Thomas 2001, Gebhardt *et al.* 2001) have focused on the reasonability of the growth rate beyond the forecast horizon when using valuation models. Differently from previous studies that assume the growth rate as an input to estimate the implied cost of capital, Easton *et al.* (2002) estimate this rate simultaneously with the expected rate return of equity using the Ohlson's (1995) residual income model (RIM). More recently, Peasnell *et al.* (2018) investigate whether analysts incorporate the mean reversion in

[d]They include economic targets on sales, earnings before interest, taxes, depreciation and amortization (EBITDA), earnings before interest and taxes (EBIT) and net income. Management also discloses financial target (leverage) and investing targets (capital expenditure).

profitability (ROE) when forecasting LTG and find a negative association between LTG and the deviation of ROE from its expected value.

However, none of these researchers have studied the long-term growth issued in strategic plans. Because the SPLTG represents a key value driver for analysts and investors to estimate the firm's value, we carry out an analysis to examine the information content of the SPLTG. If the SPLTG is perceived by investors as credible, we will expect a positive market reaction to capture these growth targets at the strategic plan release. The arguments above lead to our first hypothesis:

H_1: *The long-term growth targets disclosed in strategic plans are positively associated with a stock price reaction.*

Through strategic plans, managers are able to influence investors and analysts' perception of the firm's strategy and align the analysts' expectations of future performance with their own (Mazzola *et al.*, 2006). However, the credibility of growth targets also depends on the forecast horizon's length. On this argument, using a sample of point, range and qualitative management forecasts, Baginski & Hassell (1997) find that earnings uncertainty and forecast horizon are negatively associated with forecast precision. Moreover, as documented by Bozanic *et al.* (2018),[e] managers are reluctant to issue quantitative forecasts when uncertainty is high.

Strategic plans are long-term and the forecast horizon may influence the strategic plan's credibility. Because a longer planning horizon means greater planning uncertainty, we test whether the SPFH is value relevant for investors. We assume that the longer the SPFH, the greater the uncertainty and the less credible the strategic plan disclosure. Stated in alternative form, our second hypothesis is:

H_2: *The strategic plan's long-term forecast horizon is negatively associated with a stock price reaction.*

To test our second hypothesis, we distinguish between strategic plans with forecast horizons of up to three years (SPFH $\leq$ 3 years) and strategic plans with a forecast horizon longer than 3 years (4 years, 5 years or more) (SPFH $>$ 3 years, labelled strategic plans with long-term forecast horizons).

However, the voluntary disclosure of forward-looking information in terms of either strategic plans presentation or management earnings forecast is costly. Proprietary information revealed by the disclosure might expose managers to loss of reputation and potential litigation if the disclosure turns out to be inaccurate (Francis *et al.* 1994, Skinner 1994, 1997). Disclosure-related liability costs and proprietary information also influence the forecast's specificity (point, range, or open-interval numeric forecasts). Thus, the greater the exposure to legal liability and

[e]Bozanic *et al.* (2018) study the market response of "forecast-like" (quantitative statements about earnings) and "other" (non-forecast-like) forward-looking statements.

the managers' reputation, the less likely managers are to issue specific forecasts (Bamber & Cheon 1998).

Given the higher costs of proprietary information and the potential loss of reputation for managers when uncertainty is high, it is necessary to investigate whether the information content of SPLTG is influenced by the forecast horizon. If the informativeness of management disclosure depends on its credibility and thus the uncertainty may affect the credibility, all else being equal, investors may perceive less credible the SPLTG issued in the strategic plans with long-term forecast horizons. On the back of the previous considerations, our third hypothesis:

H_3: *The strategic plan's long-term growth targets are negatively associated with stock price reactions if the strategic plan features a long-term forecast horizon.*

3. Sample Selection and Methodology

3.1. *Sample selection*

Our sample consists of 224 strategic plan presentations by Italian listed companies during the period 2002–2018. Table 1 describes our sample. In panel A, we report the sample selection process. We initially gathered 312 strategic plans issued by 104 Italian firms from the investor relation website of each firm listed on the Milan Stock Exchange (MSE). These strategic plans contain both qualitative and quantitative information. From the overall strategic plans gathered, we excluded 83 plans for which we were not able to calculate the long-term growth targets due to insufficient data. We also discarded five additional observations because of missing data on other non-plan related control variables, leaving us with the 224 observations in the final sample. This final sample consists of 93 companies which report strategic plans with short/medium long-term forecast horizon (SPFH ≤ 3 years) and 131 companies with long-term forecast horizon in their plans (SPFH > 3 years). Panel B shows the sector composition by using the Industrial

Table 1. Sample selection process and distribution of firms providing long-term growth targets by sector and year.

Panel A: Sample selection process	
	No of strategic plans
Strategic plans gathered from companies' IR website	312
Less: Missing data for control variable measurement	−5
Total sample	307
Less: Plans without SPLTG	−83
Strategic Plan sample with SPLTG	224
Strategic Plans with Short/Medium-term forecast horizon (SPFH ≤ 3 years)	93
Strategic Plans with Long-term forecast horizon (SPFH > 3 years)	131

Table 1. (*Continued*)

Panel B: Distribution of observation by sector

ICB Sector	No strategic plans with long term growth	Percentage (%)	No strategic plans with forecasts horizon > 3 years	Percentage (%)	Percentage (%) on total strategic plans
Basic Materials	2	0.89	2	1.53	100.00
Consumer Goods	20	8.93	11	8.40	55.00
Consumer Services	21	9.38	8	6.11	38.10
Financials	39	17.41	17	12.98	43.59
Health Care	11	4.91	2	1.53	18.18
Industrials	42	18.75	26	19.85	61.90
Oil & Gas	2	0.89	1	0.76	50.00
Technology	14	6.25	6	4.58	42.86
Telecommunications	5	2.23	4	3.05	80.00
Utilities	68	30.36	54	41.22	79.41
Total	224	100	131	100	58.48

Panel C: Distribution of observations by year

Year	No Strategic plans with long term growth	Percentage (%)	No strategic plans with forecasts horizon > 3 years	Percentage (%)	Percentage (%) on total strategic plans
2002	1	0.45	0	0.00	0.00
2004	4	1.79	1	0.76	25.00
2005	4	1.79	1	0.76	25.00
2006	5	2.23	4	3.05	80.00
2007	9	4.02	6	4.58	66.67
2008	8	3.57	3	2.29	37.50
2009	10	4.46	6	4.58	60.00
2010	11	4.91	8	6.11	72.73
2011	15	6.70	10	7.63	66.67
2012	12	5.36	5	3.82	41.67
2013	10	4.46	4	3.05	40.00
2014	17	7.59	13	9.92	76.47
2015	17	7.59	11	8.40	64.71
2016	27	12.05	19	14.50	70.37
2017	31	13.84	19	14.50	61.29
2018	43	19.20	21	16.03	48.84
Total	224	100	131	100	58.48

Notes: Panel A reports the sample selection process. The sample consists of 224 strategic plan presentations by 104 Italian firms listed on MSE during the period 2002–2018. We gathered all presentations from the companies' investors relation (IR) website. From the 312 strategic plans gathered, we discarded five observations because of missing data on other non-plan related control variables and we excluded 83 plans due to the lack of long-term growth targets. Panel B reports the distribution of the sample by sector using the ICB and the distribution by sector of plans with a long-term forecast horizon (SPFH) longer than three years. Panel C shows the distribution of strategic plan presentations with SPLTG over the years.

Classification Benchmark (ICB) and the distribution by sector of plans with a forecast horizon longer than 3 years. The largest concentration is observed in utilities (30.36%) and in industrials (18.75%). Overall, 131 strategic plans (58.48%) feature a long-term forecasts horizon, with higher concentration in the Telecommunications (80.00%) and the Utility sectors (79.41%), followed by the Financial sector (17.41%). Panel C shows that sample is not fairly distributed across calendar years. From 2002 to 2008 we observe less than 10 plans issued per year, because companies updated their investor relation website to the more recent years. We note a growing trend of strategic plans with long-term growth targets in the last 3 years. From 2016 to 2018 SPLTG presentations increased from 27 to 43 (in 2018, 19.20% of the sample). This trend is consistent with the theoretical framework according to which management reports quantitative information when uncertainty is low (Bozanic *et al.* 2018). During the financial crisis, in the period between 2008 and 2013, given the high market volatility and the high uncertainty, few companies issued strategic plans; we gathered on average only 11 strategic plans with long-term growth targets.

3.2. *Research design*

We tested our hypotheses by examining the market response to the long-term growth targets and to the forecast horizon longer than 3 years (SPFH > 3) at strategic plan release. We also examined whether the long-term growth targets are affected by the forecast horizon.

In order to perform our analysis, we utilized the two-stage Heckman (1979) approach to check for potential sample selection bias (Baginski *et al.*, 2017, Hart, 2018). In our study, selection bias may occur since, in the Italian context, the choice to report long-term growth targets in the strategic plan presentation is not random and is a typical management voluntary disclosure. In the first stage of Heckman (1979) approach, by using a probit model, we investigated what company's features lead managers to disclose the long-term growth in strategic plans. Consistent with Heckman (1979), the Inverse Mills Ratio (IMR) for each observation was computed and was included in the second stage of the procedure in the market response models as control variable for selection bias. In the second stage of the procedure, we performed the information content model to explain the cumulative abnormal returns (CAR) over the three-day trading window surrounding the strategic plan release through our variables of interest and other control variables. In the next sections, we describe the two stages of the Heckman (1979) approach as well as the descriptive statistics on model variables.

3.3. *The first stage of the Heckman (1979) approach*

In the first stage of the Heckman (1979) approach, we modeled the company's decision to issue the SPLTG vs. not to issue by using firm-specific factors that could influence the choice of issuing the SPLTG. Specifically, we used the following probit

model, which regresses the choice to issue the SPLTG on a large number of firm characteristics that could be associated with this voluntary disclosure activity:

$$\text{SPLTG}_{\text{DISCL}} = \alpha + \beta_1\text{ROE} + \beta_2\text{LOSS} + \beta_3\text{D\_INSTINV} + \beta_4\text{LOGSIZE} + \beta_5\text{MBV} + \beta_6\text{LEV} + \beta_7\text{EARNVOL} + \beta_8\text{LOGAGE} + \beta_9\text{SEGMENTS} + \varepsilon. \tag{3.1}$$

SPLTG_DISCL is a variable indicator that is equal to one for firms which report SPLTG ($n = 224$) and zero otherwise ($n = 83$). Since firms with good performance have an incentive to make voluntary disclosures (Verrecchia 1983, Dye 1985), we included return on equity (ROE) as a profitability proxy. We calculated ROE as net income (NI) for the fiscal year before the date of release of the strategic plan divided by the average shareholders' equity for the two fiscal periods. When firms perform well, management may have an incentive to show ambitious performance targets, so we expect a positive sign for the coefficient. However, when firms underperform or even achieve negative performance, management may provide investors with expectations on performance recovery through the new targets. Following Hart (2018) and Kirk & Markov (2016), we included the dummy variable LOSS equal to one for negative actual earnings and zero otherwise. We believe that the likelihood of issuing long-term growth targets increases as actual performance deteriorates. Bamber & Cheon (1998) suggested that the presence of institutional investors in the firm's shareholder base increases managers' incentive to issue forecasts to reduce legal liability costs. Therefore, we expect that firms with shares owned by institutional investors are likely to issue more quantitative forecasts, such as performance targets. To examine this effect, we introduced the dummy variable D_INSTINV, which is equal to one if institutional investors hold more than 5% of the firm's shares outstanding and zero otherwise (Bamber & Cheon 1998, Alexandridis *et al.* 2019). Following Bamber & Cheon (1998), Kirk & Markov (2016), Baginski *et al.* (2004, 2017), we also included firm size (natural log of market value 2 days before the release date of strategic plans — LOGSIZE) to capture the demand for information. Managers of big firms are likely to issue much more quantitative and qualitative information than managers of small firms. We expect a positive association between these two variables and the release of SPLTG.

We controlled for growth opportunities by introducing the market to book value multiple (MBV) calculated as the market value 2 days before the date of release of the strategic plan divided by the equity book value (BV) at the end of the preceding fiscal year. Previous studies are mixed on this argument. Bamber & Cheon (1998) argue that the specificity of management earnings forecasts depends on proprietary information costs, which make management reluctant to reveal the value of these opportunities to competitors. On the other hand, Baginski *et al.* (2017) demonstrate that growth firms benefit from strategic plan presentations to access to capital market. We believe that management of a growth firm is more likely to report operating performance targets in the strategic plan to reinforce the credibility of

growth opportunities. Therefore, we expect a positive association between growth firms and the voluntary disclosure of long-term growth targets. We also included the leverage ratio (LEV), because we believe that firms with high leverage may explain their debt sustainability by providing investors with future business performance and operating targets. Therefore, we expect a positive sign of the coefficient. As Kirk & Markov (2016), we calculated LEV as total financial debt divided by total assets at the end of the prior fiscal year. In order to test whether managers' decision of disclosing long-term targets is associated with the valuation uncertainty, we used earnings volatility (EARNVOL) as an uncertainty proxy (Bozanic *et al.* 2018). The EARNVOL represents the pre-disclosure condition that could suppress management's decision to disclose long-term growth targets in the strategic plans. High EARNVOL probably makes it harder to predict future results, thus increasing forecast uncertainty (Waymire, 1985, Lu & Tucker, 2012). We measured EARNVOL as the standard deviation of EPS over five prior years scaled by stock price 2 days before the strategic plan release. Since management could be making forecasts errors (Baginski *et al.*, 2004), we expect a negative association between the decision of issuing SPLTG and EARNVOL. The decision of issuing SPLTG could be also related to the number of years that a firm has been listed on the stock market. Prior research finds that firms with a shorter history of listing on the stock exchange are less known by investors, showing a high degree of asymmetry (Lang 1991). Lundholm (2003) argues that historical information is useful to interpret current disclosures, so that for firms that have been listed for relatively shorter periods, investors do not have sufficient comparative information. Therefore, managers of these firms could be unwilling to disclose long-term forecast targets due to the high cost of disclosure credibility. To test whether the SPLTG disclosure is associated with the age of listing, we introduced the variable LOGAGE, calculated as the natural log of years the company has been listed (Bushee *et al.* 2011). Chakrabarty *et al.* (2018) argue that firms with multiple businesses or geographical segments are likely to require longer disclosure statements to adequately explain their operations. Lastly, we therefore believe that the SPLTG disclosure is positively associated with the number of operating segments (SEGMENTS), since the high number of segments implies a high degree of valuation uncertainty (Kirk & Markov 2016). After illustrating in the strategic plan the future evolution of each business segment, managers may sum up the many long-term growth targets into a single number or in a range at firm level. We calculated the SEGMENTS variable as natural log of one plus the number of firm operating segments.

3.4. *The information content of long-term growth targets — second stage of the Heckman (1979) approach*

After Eq. (3.1) was estimated, we computed the IMR for all observations in the sample using the parameters of Eq. (3.1). IMR was included among the control variables in the second stage of the Heckman (1979) procedure of the information

content model to control for selection bias. We used the following model to measure the market response to SPLTG:

$$\text{CAR} = \alpha + \beta_1 \text{SPLTG} + \sum \beta_k \text{Control variable}_k + \sum \beta_j D\_\text{Sector}_j + \varepsilon, \quad (3.2)$$

where CAR calculated as the cumulative market adjusted returns over the 3-day trading window (days −1, 0, +1) around the strategic plan release.[f] While some prior research uses the absolute value of CAR (Baginski *et al.* 2017, Kirk & Markov 2016, Bushee *et al.* 2011, Baginski *et al.* 2004), following Gu & Li (2007), Hart (2018), Lobo *et al.* (2017), we used the CAR instead of its absolute value to highlight the sign effect (positive or negative) of our tested variable (SPLTG). We are interested not only in the price change of the SPLTG, but also in understanding whether the long-term growth targets are assessed as credible and relevant by investors and whether they convey useful incremental information. To calculate the SPLTG forecasts, we followed the prior literature (Faurel *et al.* 2018) and we computed the compound annual growth rate (CAGR) implicit in the operating earnings forecasts. For non-financial firms we calculated the CAGR of EBIT or EBITDA,[g] while for financial institutions we used NI as the base for CAGR calculation. Furthermore, when the estimated results (EBIT or EBITDA or NI) of the last year of the forecast horizon were reported in the form of a range, we calculated the CAGR considering the mid-point. If the SPLTG contributes to explain the market response to the strategic plan release and is perceived as credible, we will expect a positive sign for the coefficient.

We excluded four independent variables used in the first stage of the Heckman (1979) approach from our market response model. Since CARs are a function of profitability, systematic risk (beta), size, growth and business uncertainty, in the second stage we only included ROE, LOSS, MBV, LOGSIZE and EARNVOL variables.[h] We expect a positive sign for the ROE variable, as we believe that profitability could be associated with the credibility of the strategic actions. For the LOSS variable, the expected sign is less clear, because investors could have different opinions on the strategic plan disclosure. Managers of loss-making firms may present credible targets to return their firms to profitability over the forecast horizon or vice versa.

Prior studies document that firms' growth prospects and business uncertainty affect stock returns (Collins *et al.* 1987, Easton & Zmijewski 1989, Atiase *et al.* 2005) and that a firm's size is related to the pre-disclosure information environment (Atiase 1985, Freeman 1987). We introduce the MBV variable to control for firms' information asymmetry. Prior research suggests that firms with high growth

[f]The market model used to compute the normal returns is performed over 200 trading days (from $t = -210$ to $t = -11$).

[g]For non-financial firms we considered the EBITDA forecasts. However, some firms report only the EBIT forecasts, so we used this operating performance as base to calculate the CAGR.

[h]We did not include Beta as independent variable because implicitly it is already captured by the CAR calculation as parameter of the market model.

opportunities show high valuation uncertainty, because investors have less information about the value of these firms' assets (Smith & Watts 1992, Barclay & Smith 1995). Strategic plans are therefore more useful for higher growth firms to disclose their growth prospects (Baginski *et al.* 2017) and to mitigate the information asymmetry. Based on Gu & Li (2007), Baginski *et al.* (2017), Hart (2018), we predict a positive sign for the coefficient. Firm size (LOGSIZE) proxies for the pre-disclosure information environment[i] (Baginski *et al.* 2017). Because large firms provide investors with much information and are much more followed by analysts than small firms, firm size could be an indicator for the degree of information asymmetry (Gu & Li 2007). We expect a negative sign for LOGSIZE consistent with Gu & Li (2007), Baginski *et al.* (2017), Hurt (2018), Lobo *et al.* (2017). Less clear is the sign for EARNVOL. For firms with greater uncertainty, investors may find the information showed in the strategic plans less credible. However, the strategic plan can mitigate this uncertainty and provide investors with long-term performance (Baginski *et al.* 2017).

We also included additional control variables. We controlled for stock liquidity (LIQ), measured by share turnover calculated as the ratio of the 6-month average daily trading volume as of day −2 of the strategic plan release scaled by the outstanding shares. We do not have any reference point of the expected sign from previous literature. However, for low LIQ firms the strategic plan presentation may be a significant news event, more than it would be for high LIQ firms. The effect on the stock price is expected to be negative for high LIQ firms. We also included the index volatility (INDEXVOL) to capture the stock market uncertainty, calculated as the standard deviation of daily returns of the FTSE Italia All Shares (the Italian benchmark stock market index) over the prior 6 months measured as of day −2 of the strategic plan release. A negative sign is expected if the strategic plan is announced during a period characterized by high uncertainty of market conditions and investors believe that the strategic plan is not credible. We took into account price momentum (RETPRE), since managers may release the strategic plan in an opportunistic way following the stock price trend. We predict a positive sign for the coefficient. Consistent with Clement *et al.* (2011), we calculated RETPRE as the cumulative stock returns over the 30 days — from day −2 to day −31 — preceding the strategic plan release. Strategic plans could be also issued concurrently with other price sensitive disclosures, such as earnings release. Similarly to Bushee *et al.* (2011), we introduced a dummy variable (D_INFOEVENT) that equals one if any earnings release occurs in the 3 days around the strategic plan release date (day −1 to day +1) and zero otherwise. We omitted year fixed effects[j] but we controlled for the higher uncertainty during the period of financial crisis. We therefore included the dummy variable

[i] We did not include the analyst-following variable (COVERAGE) because of the high positive correlation (0.851) with LOGSIZE. Our COVERAGE variable is calculated as the natural log of one plus the number of analysts following the firm.

[j] This is consistent with Bozanic *et al.* (2018), who argue that "to the extent that market-wide uncertainty influences firm disclosure behavior, fixed effects could absorb the effect of market-wide uncertainty."

D_CRISIS, which is equal to one if the strategic plan is issued during the period between 2008 and 2013 and zero otherwise. We expect a negative sign of the coefficient due to the greater uncertainty during the financial crisis. We also included SECTOR fixed effects.

3.5. *The information content of forecast horizons*

Our second research question is how investors perceive the SPFH. We answered this question by focusing on the market response to the release of strategic plans with forecast horizons longer than 3 years. We therefore included in Eq. (3.2) a dummy variable (D_SPFH), which is equal to one if the forecast horizon is more than three years and zero otherwise, to capture the content of this information.

$$\text{CAR} = \alpha + \beta_1 \text{SPLTG} + \beta_2 D\_\text{SPFH} + \sum \beta_k \text{Control variable}_k + \sum \beta_j D\_\text{Sector}_j + \varepsilon. \tag{3.3}$$

If uncertainty depends on the length of the forecast horizon, the coefficients of D_SPFH variable is expected to be negative. In order to test whether long-term growth targets are perceived by investor in different ways (our third research question), depending on the strategic plan forecast horizon, we created an interaction dummy variable assigning a value equal to SPLTG if D_SPFH is equal to one and zero otherwise. We have Eq. (3.4)

$$\text{CAR} = \alpha + \beta_1 \text{SPLTG} + \beta_2 D\_\text{SPFH} + \beta_3 \text{SPLTG} * D\_\text{SPFH} + \sum \beta_k \text{Control variable}_k + \sum \beta_j D\_\text{Sector}_j + \varepsilon. \tag{3.4}$$

This interaction dummy variable expresses the relevance of the growth targets announced in the strategic plans with long-term forecast horizons. We expect investors perceive these targets as less credible, because they could be perceived as ambitious, given the length of the forecast horizon. The sign of the coefficient is therefore expected to be negative. The control variables are the same as in Eqs. (3.2) and (3.3).

3.6. *Descriptive statistics on models variables*

Table 2 exhibits a univariate comparison of the variables used in the first stage of the Heckman (1979) approach.[k] Panel A reports comparisons between strategic-plan long-term growth targets presenters (8 3) and non-presenters (8 3). The average size (LOGSIZE) of SPLTG non-presenters is 8.549 compared to the 6.825 suggesting that large firms provide investors with less quantitative information regarding the SPLTG. On average 26.5% of non-presenters reported losses compared to 16.5% of presenters. The SPLTG presenters reported an average ROE greater than that of

[k]We tabulate descriptive statistics with winsorized continuous variables (except for log variables) at the top and bottom 1%.

Table 2. Comparison between presenters of strategic plans with long-term growth targets vs. non-presenters and sample comparison between presenters of strategic plans with long-term forecast horizon vs. short/mid-term forecast horizon presenters.

Panel A: Comparison between presenters of Strategic Plans with Long Term Growth Targets vs. Non-presenters

	SPLTG Non-presenters (No = 83)		SPLTG presenters (No = 224)		Difference	
Descriptive statistics	Mean	Median	Mean	Median	Mean (t-test)	Median (Wilcoxon Z)
ROE	−0.023	0.091	0.040	0.068	*−0.063**	*0.023*
LOSS	0.265	0.000	0.165	0.000	*0.100**	*0.000***
LEV	0.346	0.363	0.309	0.329	*0.037**	*0.034***
MBV	1.725	1.540	1.944	1.373	*−0.219*	*0.167*
LOGSIZE	8.549	8.713	6.825	6.936	*1.724****	*1.777****
D_INSTINV	0.843	1.000	0.763	1.000	*0.080*	*0.000*
EARNVOL	1.048	0.035	0.304	0.038	*0.744**	*−0.003*
LOGAGE	2.414	2.582	2.381	2.618	*0.033*	*−0.036*
SEGMENTS	1.535	1.609	1.592	1.792	*−0.057*	*−0.183*

Panel B: Sample comparison between presenters of Strategic Plans with Long Term Forecast Horizon (SPFH > 3) vs. Short/mid-term Forecast Horizon (SPFH ≤ 3) presenters

	SPFH ≤ 3 Years (No = 93)		SPFH > 3 Years (No = 131)		Difference	
Descriptive statistics	Mean	Median	Mean	Median	Mean (t-test)	Median (Wilcoxon Z)
CAR [−1, +1]	0.016	0.011	0.000	0.002	*0.016***	*0.009***
SPLTG	0.242	0.149	0.147	0.117	*0.095****	*0.032****

Notes: ***, **, * Indicate $p < 0.01$, $p < 0.05$, and $p < 0.10$, respectively.

Notes: Panel A reports the comparison between SPLTG non-presenters vs. SPLTG presenters used in the first stage of the Heckman (1979) approach. The difference between mean and median is tested through the t-test and Wilcoxon Z, respectively. Panel B shows the difference tests for CAR (−1, +1) and SPLTG between strategic plans with forecast horizons shorter than, or equal to, three years (SPFH ≤ 3) and those with SPFH longer than three years (SPFH > 3). As in panel A, the tests are based on t-test for means and Wilcoxon test for medians. To mitigate the influence of outliers, all continuous variables (except for log variables) are winsorized at 1% and 99%. All variables are defined in Appendix A.

the non-presenters, and average leverage and EARNVOL lower than those of the non-presenters. They have a higher average MBV multiple and show an average number of segments greater than that of non-presenters.

Because Eq. (3.2) tests the market response to the forecast horizon of strategic plans, we also report the mean and median difference tests of CAR and SPLTG between strategic plans with long-term forecast horizons (greater than 3 years) and those with a lower forecast horizon (lower or equal to 3 years). Panel B shows that the mean difference and the median difference of CAR and SPLTG between firms that present strategic plan with SPFH ≤ 3 years and those with SPFH > 3 are positive and statistically significant. The higher SPLTG of firms with short/mid forecast horizons suggests that the long-term growth target is diluted over longer periods and that the market response is greater for these firms.

Although it is not the primary focus of our study, in Table 3 we provide evidence on the stock price reaction to strategic plans. Panel A shows the average abnormal return (AAR) for the 21 days around the date of strategic plan release (-10 days, 0 release date and $+10$ days) with several statistical tests.[1] At the release date the AAR is positive ($+0.583\%$) and statistically significant, followed by negative AARs (-0.128%) in the next 2 days even if not statistically significant. Our results are consistent with Francis *et al.* (1997), who document a significant mean abnormal return of $+0.027\%$ at the release of corporate plans.

In Panel B we reported the cumulative average abnormal returns (CAARs) with the statistical tests calculated for different event windows from $(-1, +1)$ days to $(-10, +10)$ days. The CAAR relative to the event window used in our regressions $(-1, +1)$ is equal to $+0.654\%$.

Table 4, Panel A shows the descriptive statistics for the variables of our information content models. The distribution of CAR $(-1, +1)$ is symmetric as shown by the mean (0.006) and median (0.006) values, while the comparison between the mean of SPLTG (18.6%) and the median (12.2%) indicates a right skewed distribution. As shown in Table 2, Panel B, this skewness is mostly due to the SPLTG of strategic plans with SPFH of less than 3 years with mean and median values of 24.2% and 14.9%, respectively. The mean of D_INFOEVENT is 0.165, indicating that only 16.5% of strategic plan releases are accompanied by other disclosures, such as earnings announcements. This evidence is consistent with Bushee *et al.* (2011), who find globally an average value of 17.4% of conference presentations accompanied by material information disclosures. The mean of D_CRISIS is 0.295 indicating that almost the 30% of strategic plan is issued during the crisis period (between 2008 and 2013). Panel B exhibits the pairwise correlations among the models variables. As expected, the correlation between SPLTG and CAR is positive (0.109), while D_SPFH is negatively correlated with CAR (-0.132). A negative correlation (-0.193) is also observed between SPLTG and D_SPFH, supporting the evidence

[1]We calculated AARs and CAARs using the eventstudy2 program (Kaspereit 2018) in STATA 15 software.

Table 3. Market response to strategic plan presentations.

Panel A: Daily average abnormal returns to strategic plan presentations

Days	N	AAR (%)	t-test	CDA test	Patell test	Bohemer test	Kolari test	Cowan rank test	Corrado and Zivney rank test	Generalized sign test
−10	224	0.009	*0.064*	*0.071*	*−0.707*	*−0.652*	*−0.555*	*−0.684*	*−0.636*	*−0.933*
−9	224	−0.127	*−0.944*	*−1.042*	*−0.332*	*−0.284*	*−0.242*	*−0.903*	*−0.739*	*−0.264*
−8	224	−0.078	*−0.579*	*−0.640*	*−0.374*	*−0.357*	*−0.304*	*−0.327*	*−0.267*	*−0.397*
−7	224	0.114	*0.844*	*0.931*	*1.264*	*1.309*	*1.116*	*1.217*	*1.215*	*0.539*
−6	224	0.249	*1.852**	*2.042***	*0.624*	*0.569*	*0.485*	*−0.084*	*0.016*	*0.272*
−5	224	0.387	*2.876****	*3.173****	*2.847****	*2.457***	*2.094***	*1.60*	*1.687**	*0.673*
−4	224	0.451	*3.351****	*3.697****	*3.533****	*3.642****	*3.103****	*3.304****	*3.302****	*3.885****
−3	224	−0.005	*−0.035*	*−0.039*	*0.551*	*0.532*	*0.453*	*0.210*	*0.232*	*0.138*
−2	224	0.205	*1.522*	*1.680**	*2.029***	*2.052***	*1.749**	*2.379***	*2.370***	*2.011***
−1	224	0.199	*1.478*	*1.632*	*1.511*	*1.407*	*1.199*	*1.169*	*1.179*	*1.476*
0	224	0.583	*4.328****	*4.774****	*4.497****	*1.780**	*1.517*	*2.475***	*2.511***	*1.342*
1	224	−0.128	*−0.954*	*−1.052*	*0.276*	*0.140*	*0.119*	*0.424*	*0.804*	*0.539*
2	224	−0.128	*−0.952*	*−1.050*	*−1.134*	*−0.898*	*−0.765*	*−0.862*	*−0.648*	*−0.264*
3	224	−0.290	*−2.152***	*−2.375***	*−1.581*	*−1.521*	*−1.296*	*−1.060*	*−0.992*	*−1.468*
4	224	0.284	*2.110***	*2.327***	*2.474***	*1.984***	*1.691**	*1.365*	*1.421*	*2.145***
5	224	0.069	*0.510*	*0.562*	*0.238*	*0.203*	*0.173*	*−0.248*	*−0.076*	*−0.397*
6	224	0.050	*0.369*	*0.408*	*0.202*	*0.178*	*0.152*	*−0.105*	*−0.009*	*−0.130*
7	224	−0.277	*−2.056***	*−2.268***	*−1.929**	*−1.531*	*−1.304*	*−1.046*	*−0.944*	*0.673*
8	224	−0.246	*−1.826**	*−2.014***	*−1.496*	*−1.459*	*−1.243*	*−1.344*	*−1.326*	*−1.468*
9	224	0.126	*0.937*	*1.034*	*1.046*	*0.709*	*0.604*	*0.147*	*0.489*	*0.138*
10	224	0.090	*0.668*	*0.736*	*0.664*	*0.542*	*0.462*	*−0.098*	*0.088*	*−0.665*

Panel B: Daily cumulative average abnormal returns to strategic plan presentations

Event Window	N	CAAR (%)	t-test	CDA test	Patell test	Bohemer test	Kolari test	Cowan rank test	Corrado and Zivney rank test	Generalized sign test
[−1;+1]	224	0.654	*2.803****	*3.091****	*4.850****	*1.938**	*1.651**	*2.442***	*2.709****	*2.948****
[−2;+2]	224	0.731	*2.425***	*2.676****	*5.325****	*2.276***	*1.939**	*2.554***	*2.859****	*2.948****
[−3;+3]	224	0.436	*1.222*	*1.349*	*4.169****	*1.819**	*1.550*	*1.843**	*2.142***	*2.413***

Table 3. (*Continued*)

Panel B: Daily cumulative average abnormal returns to strategic plan presentations

Event Window	N	CAAR (%)	t-test	CDA test	Patell test	Bohemer test	Kolari test	Cowan rank test	Corrado and Zivney rank test	Generalized sign test
[−4;+4]	224	1.171	*2.891***	*3.198***	*7.810***	*3.520***	*2.999***	*3.078***	*3.346***	*4.286***
[−5;+5]	224	1.627	*3.625***	*4.019***	*9.220***	*4.205***	*3.583***	*3.164***	*3.475***	*3.350***
[−6;+6]	224	1.927	*3.936***	*4.376***	*8.267***	*3.756***	*3.20***	*2.875***	*3.228***	*3.885***
[−7;+7]	224	1.763	*3.339***	*3.729***	*7.944***	*3.533***	*3.010***	*2.702***	*3.046***	*3.885***
[−8;+8]	224	1.439	*2.549***	*2.859***	*6.154***	*2.587***	*2.204***	*2.157***	*2.507***	*2.681***
[−9;+9]	224	1.438	*2.395***	*2.703***	*5.522***	*2.311***	*1.969**	*1.882**	*2.322***	*2.547***
[−10;+10]	224	1.537	*2.415***	*2.747***	*4.627***	*1.917**	*1.633*	*1.646**	*2.111***	*2.814***

Note: ***, **, *Indicate $p < 0.01$, $p < 0.05$, and $p < 0.10$, respectively.

Notes: Panel A shows daily AARs for the sample of 224 strategic plans. The panel shows the AAR for 21 days around the date of strategic plan release (−10 days, 0 release date and +10 days). We used the event study methodology to estimate the abnormal returns, where the parameters of market model are estimated over 200 trading days (from $t = -210$ to $t = -11$). The panel also exhibits the t-test according to Serra (2002), the crude dependence test (CDA) test according to Brown & Warner (1980), the Patell test (1976), the Boehmer *et al.* (1991), the Kolari test according to Kolari & Pynnönen (2010), the Cowan rank test (1992), the Corrado & Zivney rank test (1992) and the generalized sign test according to Cowan (1992). Panel B features the CAARs calculated for different event windows from (−1, +1) days to (−10, +10) and the above statistical tests.

Table 4. Descriptive statistics of variables used in the regression models and pairwise correlation matrix.

Panel A: Descriptive statistics

	N	Mean	sd	25th Perc.	Median	75th Perc.
CAR [−1,+1]	224	0.006	0.059	−0.018	0.006	0.036
SPLTG	224	0.186	0.243	0.063	0.122	0.198
D_SPFH	224	0.585	0.494	0.000	1.000	1.000
ROE	224	0.040	0.219	0.022	0.068	0.126
LOSS	224	0.165	0.372	0.000	0.000	0.000
LIQ	224	0.004	0.004	0.001	0.002	0.004
EARNVOL	224	0.304	2.280	0.016	0.038	0.090
MBV	224	1.944	1.827	0.890	1.373	2.229
LOGSIZE	224	6.825	2.044	5.463	6.936	8.032
INDEXVOL	224	0.014	0.005	0.009	0.012	0.017
RETPRE	224	0.019	0.121	−0.052	0.019	0.079
D_INFOEVENT	224	0.165	0.372	0.000	0.000	0.000
D_CRISIS	224	0.295	0.457	0.000	0.000	1.000

Panel B: Pairwise correlation between variables of the information content model ($N = 224$)

	(1)	(2)	(3)	(4)	(5)	(6)
(1) CAR [−1,+1]	1,000					
(2) SPLTG	0,109	1,000				
(3) D SPFH	−0.132*	−0.193*	1,000			
(4) ROE	0,013	−0.256*	0.114*	1,000		
(5) LOSS	0,028	0.295*	−0,064	−0.675*	1,000	
(6) LIQ	−0.204*	0.163*	0.136*	−0.115*	0.183*	1,000

	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(7) EARNVOL	1.000						
(8) MBV	−0.071	1.000					
(9) LOGSIZE	−0.064	−0.058	1.000				
(10) INDEXVOL	−0.077	−0.219*	0.019	1.000			
(11) RETPRE	−0.060	0.177*	0.056	−0.132*	1.000		
(12) D INFOEVENT	−0.044	−0.118*	0.291*	0.117*	0.055	1.000	
(13) D CRISIS	−0.060	−0.222*	0.027	0.482*	−0.132*	0.029	1.000

Note: *Significance at the 0.1 level.

Notes: Panel A shows summary statistics for variables used in the analysis, while Panel B reflects the pairwise correlation matrix.

that strategic plans with long-term forecast horizons (longer than 3 years) show lower growth targets, confirming that the growth of operating performance is diluted over longer periods. SPLTG is also negatively correlated with ROE (−0.256) supporting the idea that management of firms with poor performance are less likely to issue higher growth targets. This evidence is consistent with Bamber & Cheon (1998), who document that managers of firms with poor earnings performance provide investors with forecasts to reduce the legal liability costs.

However, as shown by a positive correlation between SPLTG and the dummy variable LOSS (0.295), when firms report actual losses, the strategic plans show positive performance targets. A positive correlation (0.114) is also observed between ROE and D_SPFH, suggesting that managers are likely to issue strategic plans with long-term forecast horizons when firms results are positive because investors could perceive these targets as more credible, if accompanied by actual positive performance.

As expected, a negative correlation (−0.050) is observed between EARNVOL and CAR and a positive correlation (0.167) between EARNVOL and SPLTG.

This last evidence is consistent with Baginski *et al.* (2017), who demonstrate that the content of strategic plans mitigates uncertainty. Lastly, the negative correlation (−0.116) between EARNVOL and D_SPFH suggests that uncertainty discourages managers from releasing strategic plans with long-term forecast horizons.

4. Empirical Results

4.1. *Results of the first stage of the Heckman (1979) approach*

Table 5 features the results from estimating Eq. (3.1) of the first stage of the Heckman approach. We tabulate the results of all our regressions after winsorizing all continuous variables (except for log variables) at the top and bottom 1%. The pseudo R^2 is 25.8%.

We find several results consistent with our expectations. ROE is positively correlated with the issue of the growth targets and is statistically significant, suggesting that firms with higher actual profitability are likely to issue performance targets. Contrary to our expectation, although not statistically significant, the LOSS variable is negatively associated with the choice of presentation of SPLTG. Managers are reluctant to outline performance targets when the company reported actual losses, probably because investors may not regard this information as credible enough. The coefficient of MBV is positively associated with the choice to report the SPLTG, confirming that managers of growth firms have an incentive to show growth targets to reinforce the credibility of growth opportunity. In the same way, the negative and statistically significant coefficient of LOGSIZE suggests that small firms are more likely to report the long-term targets to strengthen their growth path. Contrary to our expectations, highly leveraged (LEV) firms may not report long-term performance. All remaining variables are consistent with our expectations and their coefficients are statistically significant at conventional level.

4.2. *Results of the information content model — second stage of the Heckman (1979) approach*

Table 6 shows the results from estimating the second stage of the Heckman (1979) approach from columns 1 to 4. Following Baginski *et al.* (2017), in addition from columns 5 to 8, we replicate our tests using OLS regression to assess the robustness of

Table 5. Results of the first stage of the Heckman (1979) approach.

Dependent variable:		
SPLTG presenter = 1/SPLTG non presenter = 0		
Variables	Expected sign	Coefficient
ROE	+	1.163**
		(2.573)
LOSS	+	−0.456
		(−1.543)
D_INSTINV	+	0.529*
		(1.882)
LOGSIZE	+	−0.463***
		(−7.865)
MBV	+	0.139**
		(2.155)
LEV	+	−1.082*
		(−1.767)
EARN_VOL	−	−0.061**
		(−2.369)
LOGAGE	+	0.352***
		(2.875)
SEGMENTS	+	0.666***
		(3.264)
Constant	+/−	2.053***
		(3.902)
N		307
Pseudo R^2		0.258

Z-statistics in parentheses.
***, **, *Indicate $p < 0.01$, $p < 0.05$, and $p < 0.10$, respectively.
Notes: The table reports the results of the first stage of the Heckman (1979) approach used to control for potential sample selection bias. A probit model Eq. (4.1) is used to explain the reasons why Italian listed companies issue strategic-plan long-term targets. The choice to issue the SPLTG (SPLTG_DISCL) is regressed on a large number of firm characteristics that could be associated with this voluntary disclosure activity:

$$\text{SPLTG}_{\text{DISCL}} = \alpha + \beta_1\text{ROE} + \beta_2\text{LOSS} + \beta_3\text{D\_INSTINV} + \beta_4\text{LOGSIZE} + \beta_5\text{MBV} + \beta_6\text{LEV} + \beta_7\text{EARNVOL} + \beta_8\text{LOGAGE} + \beta_9\text{SEGMENTS} + \varepsilon. \quad (3.1)$$

All variables are defined in Appendix A.

our analysis with an alternative method that does not employ the first stage of the Heckman (1979) approach. In order to investigate the incremental information content of our variables of interest, in the first column first we tabulate only the market response to all control variables at the strategic plan release and in the subsequent columns we report the results of our regression models. We reported coefficient estimates and t-statistics in parentheses based on the robust standard errors adjusted for heteroscedasticity. In the first column, several variables are statistically significant. The ROE coefficient is significantly positive (t-stat = 1.666),

Table 6. Results of information content model — second stage of Heckman (1979) approach and OLS regressions.

		Information content model – second stage heckman selection model				Information content model – OLS regression			
Variables	Expected sign	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
SPLTG	+		0.042**	0.038**	0.018		0.041**	0.037**	0.016
			(2.286)	(2.049)	(0.821)		(2.273)	(2.039)	(0.781)
D_SPFH	–			−0.020**	−0.034***			−0.019**	−0.034***
				(−2.333)	(−3.315)			(−2.160)	(−3.256)
D_SPFH*SPLTG	–				0.086***				0.088***
					(2.711)				(2.848)
ROE	+	0.036*	0.042**	0.044**	0.040*	0.021	0.025	0.026	0.023
		(1.660)	(2.034)	(2.1290)	(1.905)	(0.954)	(1.240)	(1.281)	(1.074)
LOSS	+/–	0.006	0.003	0.003	0.003	0.012	0.009	0.011	0.010
		(0.321)	(0.152)	(0.176)	(0.186)	(0.708)	(0.564)	(0.608)	(0.604)
LIQ	–	−2.576**	−2.975**	−2.433*	−2.630**	−2.720**	−3.116**	−2.609**	−2.803**
		(−2.127)	(−2.328)	(−1.866)	(−2.169)	(−2.315)	(−2.526)	(−2.073)	(−2.372)
EARNVOL	+/–	−0.002***	−0.003**	−0.003**	−0.003***	−0.001***	−0.002**	−0.002**	−0.002**
		(−2.847)	(−2.391)	(−2.508)	(−2.840)	(−2.696)	(−1.991)	(−2.103)	(−2.406)
MBV	+	0.002	0.001	0.001	−0.001	0.002	0.001	0.001	−0.001
		(0.551)	(0.224)	(0.254)	(−0.277)	(0.530)	(0.209)	(0.236)	(−0.302)
LOGSIZE	–	−0.008**	−0.006*	−0.006	−0.005	−0.004	−0.002	−0.002	−0.001
		(−2.188)	(−1.697)	(−1.648)	(−1.468)	(−1.582)	(−0.878)	(−0.697)	(−0.466)
INDEXVOL	–	0.678	0.758	1.051	0.929	0.579	0.651	0.923	0.803
		(0.793)	(0.908)	(1.259)	(1.126)	(0.678)	(0.777)	(1.097)	(0.965)
RETPRE	+	−0.013	−0.014	−0.007	−0.010	−0.017	−0.019	−0.013	−0.015
		(−0.267)	(−0.292)	(−0.159)	(−0.217)	(−0.372)	(−0.404)	(−0.283)	(−0.341)
D_INFOEVENT	+/–	−0.002	−0.006	−0.007	−0.005	−0.001	−0.005	−0.005	−0.003
		(−0.183)	(−0.494)	(−0.562)	(−0.369)	(−0.073)	(−0.370)	(−0.426)	(−0.230)
D_CRISIS	–	−0.017**	−0.018**	−0.021**	−0.022**	−0.015*	−0.016*	−0.019**	−0.020**
		(−2.005)	(−2.101)	(−2.430)	(−2.544)	(−1.722)	(−1.795)	(−2.049)	(−2.159)
IMR	+/–	0.035	0.037	0.040	0.039				
		(1.423)	(1.522)	(1.571)	(1.523)				
Constant	+/–	0.061***	0.049**	0.058**	0.065***	0.044**	0.032	0.039*	0.047**
		(2.656)	(2.028)	(2.446)	(2.805)	(2.031)	(1.424)	(1.741)	(2.159)

Table 6. (*Continued*)

		Information content model – second stage heckman selection model				Information content model – OLS regression			
Variables	Expected sign	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
N		224	224	224	224	224	224	224	224
Adj. R^2		0.035	0.052	0.070	0.086	0.029	0.045	0.062	0.078
Sector dummies		Included	Included	Included	Included	Included	Included	Included	Included
F-test		2.931	2.865	3.367	41.010	2.290	2.296	3.009	252.700
Prob $> F$		0.000	0.000	0.000	0.000	0.002	0.002	0.000	0.000

Note: Robust t-statistics in parentheses.
Note: ***, **, * Indicate $p < 0.01$, $p < 0.05$, and $p < 0.10$, respectively.
Notes: The table reports the results of the following information content models Eqs. (3.2)–(3.4):

$$\text{CAR} = \alpha + \beta_1 \text{SPLTG} + \sum \beta_k \text{Control variable}_k + \sum \beta_j \text{D\_Sector}_j + \varepsilon, \tag{3.2}$$

$$\text{CAR} = \alpha + \beta_1 \text{SPLTG} + \beta_2 D\_\text{SPFH} + \sum \beta_k \text{Control variable}_k + \sum \beta_j D\_\text{Sector}_j + \varepsilon, \tag{3.3}$$

$$\text{CAR} = \alpha + \beta_1 \text{SPLTG} + \beta_2 D\_\text{SPFH} + \beta_3 \text{SPLTG} * D\_\text{SPFH} + \sum \beta_k \text{Control variable}_k + \sum \beta_j D\_\text{Sector}_j + \varepsilon. \tag{3.4}$$

All models are the second stage of the Heckman (1979) approach and includes the Invers Mills Ratio (IMR) among the control variables. In Eqs.(3.2) and (4.3), we investigate whether SPLTG and SPFH are value relevant for investors, while in Eq. (3.4) we test the value relevance of SPLTG in conjunction with SPFH. In the first column, we show the results of our information content models without including any of our variables of interest to capture subsequently in columns 2, 3 and 4 their incremental effect. From columns 5 to 8, we show the results of the OLS regressions to assess the robustness of our analysis with an alternative method that does not employ the first-stage of Heckman (1979) approach. The OLS regressions therefore do not include the IMR factor. All continuous variables (except for log variables) are winsorized at 1% and 99%. All test statistics and significance levels are based on robust standard errors. All variables are defined in Appendix A.

suggesting that for firms with good profitability the strategic plan represents a disclosure appreciated by investors. As expected, LIQ is negatively associated with CAR (t-stat $= -2.127$), suggesting that for firms with low LIQ stock strategic plan presentations are more likely to produce negative abnormal returns than high LIQ firms. EARNVOL is also significantly negative (t-stat $= -2.847$), suggesting that for firms with greater uncertainty the strategic plan disclosure is perceived as less credible than it would be for firms with low uncertainty. On the other hand, Baginski *et al.* (2017) find that EARNVOL is positively associated with CAR, because strategic plans mitigate the uncertainty perceived by investors. LOGSIZE is also negatively associated with CAR (t-stat $= -2.188$), consistent with the prediction that disclosure by smaller firms is more informative to investors (Gu & Li 2007). This result is consistent with Gu & Li (2007), Bushee *et al.* (2011), Lobo *et al.* (2017), Bozanic *et al.* (2018), Hart (2018), but stands in contrast with Baginski *et al.* (2017). As we expected, the higher uncertainty during the financial crisis (from 2008 to 2013) affects negatively the strategic plans releases. In this period, strategic plans are perceived by investor as less credible as showed by the negative and statistically coefficient (t-stat $= -2.005$) of the dummy variable D_CRISIS. None of the other control variables showed in the column 1 is statistically significant at the conventional level.

In the second column, we included the SPLTG variable. As expected, the long-term growth target has an incremental information content for investors as indicated by a positive association between SPLTG and CAR (t-stat $= 2.286$). The incremental information is also measured by a rise in the adjusted R^2, which increases from 3.5% to 5.2%. In column three, we show the incremental effect of D_SPFH. Strategic plans with long-term forecast horizons are negatively perceived by investors as suggested by the negative coefficient of this dummy variable (t-stat $= -2.333$). The 3-day CAR, all else being equal, is on average 2.0% lower for firms that present a strategic plan with a long-term forecast horizon. This result confirms our expectations. Strategic plans with a long-term forecast horizon are perceived as more uncertain and less credible by investors. The fourth column shows the incremental information of the interactive dummy D_SPFH*SPLTG. The coefficient (0.086) is statistically significant with a positive sign (t-stat $= 2.711$), suggesting that investors believe in the long-term growth targets reported in the strategic plans even if the forecast horizon is longer than 3 years.[m] Contrary to expectations, investors perceive this long-term growth target as credible regardless of the length of the forecast horizon. It could be that investors perceive management commitment to achieving long-term growth target even if the strategic plan shows a long-term forecast horizon. The inclusion of this variable is paramount for our model. It captures the full effect of the SPLTG variable, which misses its statistical significance (t-stat $= 0.821$) although the sign remains positive. By contrast, the D_SPFH

[m]In untabulated tests, for all models we obtained similar results when we used CAR calculated on a 5-day event window $(-2, +2)$.

coefficient remains always negative, but more so than previously shown in column 3 (-0.034 vs. -0.020). These results suggest that, overall, a strategic plan with a long forecast horizon (greater than 3 years) is perceived negatively by investors, but in any case long-term growth targets represent quantitative information perceived as credible by investors. Furthermore, the positive market reaction to the SPLTG partially offsets the highly negative reading of the dummy D_SPFH. The adjusted R^2 is 8.6%. Regarding the potential selection bias of presenting/not presenting long-term growth targets in strategic plans, the coefficient of the IMR is not statistically significant in all multivariate models, not justifying the concern for selection bias. The OLS regressions without the IMR reported in the last four columns also yield the same results on the strategic plan-related variables of interests.

In summary, our predictions in H1, H2 are supported by the data, while that in H3 is not. The results suggest that long-term growth targets convey value relevant information to investors and that strategic plans with long-term forecast horizons are perceived as less credible. However, investors appreciate long-term growth targets even if the forecast horizon is long-term.

5. Robustness Check

5.1. *The value relevance of long-term growth targets and of forecast horizons*

In this paragraph, we provide further analysis to reinforce the findings of the previous information content models. We used a regression model drawn from the RIM by Ohlson (1995) to test the relevance of our variables of interest. The model derives the market value of equity from the BV of equity and NI. However, the model ignores the "other information" not captured by current financial statements but that are value relevant in equity valuation. Therefore, researchers are used to expressing the original Ohlson (1995) model as follows:

$$\mathrm{MV} = \alpha + \beta_1 \mathrm{BV} + \beta_2 \mathrm{NI} + \sum \beta_k v_k + \varepsilon, \tag{5.1}$$

where the variable v represents the "other information." Based on the formula above, we derived our value relevance model, which also includes our variables of interest. Consistent with Bagna *et al.* (2015), we scaled MV and NI by BV, to express the model in terms of the MBV multiple as the dependent variable and ROE as the independent variable

$$\begin{aligned}\mathrm{MBV}_{\mathrm{After}} = {} & \alpha + \beta_1 \mathrm{SPLTG} + \beta_2 \mathrm{D\_SPFH} + \beta_3 \mathrm{SPLTG} * \mathrm{D\_SPFH} + \beta_4 \mathrm{ROE} \\ & + \beta_5 \mathrm{D\_NEGROE} + \sum \beta_k \mathrm{Control\ variable}_k + \sum \beta_j D\_\mathrm{Sector}_j + \varepsilon.\end{aligned} \tag{5.2}$$

In our model, $\mathrm{MBV}_{\mathrm{After}}$ is the MBV multiple calculated as market value on day one after the strategic plan release scaled by the company's equity BV at the end of previous fiscal year. ROE, SPLTG and SPFH are the same variables, as explained in the previous section. As in Barth *et al.* (1998) and in Bagna *et al.* (2015), we added a

multiplicative dummy variable (D_NEGROE) assigning a value equal to ROE if ROE is negative and zero otherwise. This variable takes into account the market's recovery expectations (Bagna *et al.* 2015). The expected sign is negative. Moreover, we included a Beta variable (BETA) to control for cost of equity variance within the sample. Consistent with Bagna *et al.* (2015), we expected a negative sign, as the beta indicates the systematic risk that negatively affects the price to BV multiple. As in the information content model, we also included other several control variables which could contribute to explain the MBV multiple. We took into account the diversification discount by introducing the variable SEGMENTS, for which we expect a negative coefficient sign. We included EARNVOL and RETPRE to capture the business uncertainty and the price momentum, respectively. The model also includes the INDEXVOL. We expect a negative coefficient sign for this variable. We also considered the effect of other price sensitive disclosures other than the strategic plan release, introducing the dummy D_INFOEVENT. We controlled whether firms during the financial crisis are priced at discount introducing the D_CRISIS variable, for which we expected a negative sign of the coefficient.

In order to test whether our variables of interest are value relevant for investors, and to study their incremental explanatory power, first we perform the regression without any of these variables. Second, we run the same regression including all the three variables: the SPLTG, the SPFH and the D_SPFH * SPLTG. If investors perceive the long-term growth credible, then the coefficient of SPLTG will be positive and statistically significant. We expect instead a negative coefficient for SPFH, if this variable captures the uncertainty of long-term forecast horizons. The negative sign of this coefficient indicates firms that issue strategic plans with long-term forecast horizons, all else being equal, are priced at a discount. Finally, the multiplicative dummy variable D_SPFH*SPLTG should express the value relevant growth targets in conjunction with the long-term forecast horizon. As in Eq. (4.3), we expect a negative sign for this last variable. In our value relevance model, we did not include the IMR because it is calculated using the parameters of the probit model Eq. (4.1), which includes the MBV multiple among the independent variables.

5.2. *Results of the robustness check*

Table 7 shows the results of the value relevance model. As in the previous models, we run the regressions after winsorizing all continuous variables (except for log variables) at the top and bottom 1%. In the first column, we tabulate only the model's results without our variables of interest to test their incremental value relevance in the subsequent column. All variables except for the D_INFOEVENT and INDEXVOL are statistically significant although the sign of coefficients is in line with our expectations. The adjusted R^2 is 42.0%. In the second column, we show the incremental value relevance of SPLTG, SPFH and SPLTG*SPFH. Since the adjusted R^2 increases to 50.4%, the tested variables contain value relevant information for investors. The coefficient of SPLTG is positive (0.825), as in the information content

Table 7. Results of robustness check — value relevance model — OLS regressions.

Variables	Expected sign	(1)	(2)
SPLTG	+		0.825*
			(1.818)
D_SPFH	−		−0.537*
			(−1.744)
D_SPFH* SPLTG	−		4.232***
			(2.972)
ROE	+	9.562***	10.116***
		(3.867)	(4.161)
D_NEGROE	−	−12.058***	−12.486***
		(−4.332)	(−4.600)
SEGMENTS	−	−0.650**	−0.742***
		(−2.417)	(−2.648)
LOGSIZE	+	0.133*	0.192**
		(1.858)	(2.486)
BETA	−	−0.677*	−0.679*
		(−1.922)	(−1.949)
EARNVOL	−	−0.069***	−0.074***
		(−4.247)	(−2.606)
INDEXVOL	−	−23.641	−22.350
		(−1.417)	(−1.396)
RETPRE	+	2.242*	1.852**
		(1.800)	(2.194)
D_INFOEVENT	+/−	−0.294	−0.299
		(−1.434)	(−1.388)
D_CRISIS	−	−0.516***	−0.511***
		(−3.067)	(−3.023)
Constant	+	1.804**	1.606*
		(2.340)	(1.884)
N		224	224
Adj. R^2		0.420	0.504
Sector dummies		Included	Included
F-test		9.558	9.154
Prob > F		0.000	0.000

Note: Robust t-statistics in parentheses.
Note: ***, **, * Indicate $p < 0.01$, $p < 0.05$, and $p < 0.10$, respectively.
The table reports the results of the Value Relevance model Eq. (5.2):

$$\begin{aligned}\text{MBV}_{\text{After}} = {} & \alpha + \beta_1 \text{SPLTG} + \beta_2 \text{D\_SPFH} + \beta_3 \text{D\_SPFH} * \text{SPLTG} \\ & + \beta_4 \text{ROE} + \beta_5 \text{D\_NEGROE} + \sum \beta_k \text{Control variable}_k \\ & + \sum \beta_j D\_\text{Sector}_j + \varepsilon. \end{aligned} \tag{5.2}$$

The model, drawn from the RIM by Ohlson (1995), is performed as robustness check of the information content models reported in Table 6. All continuous variables (except for log variables) are winsorized at 1% and 99%. All test statistics and significance levels are based on robust standard errors. All variables are defined in Appendix A.

model, and statistically significant to confirm the relevance of this information (t-stat = 1.818). This result is consistent with Ota (2010), who shows for Japanese firms a high positive correlation between next year's management forecasts and stock price. We observe a negative and statistically significant association between long-term forecast horizon and the MBV multiple (t-stat = −1.744), suggesting firms that present strategic plans with long-term forecast horizons are priced at a discount to other firms. Lastly, the interactive dummy variable is positive and statistically significant (t-stat = 2.972), as in the information content model, confirming again that the SPLTG is value relevant for investors regardless of the forecast horizon's length. Interestingly, in both columns, the intercept of the model is positive and statistically significant, but its magnitude is lower in the second column. This evidence suggests that the difference between the two coefficients represents the value of future growth opportunities not fully captured by the ROE coefficient in the first column (9.562), which is lower than in the second column (10.116). Because both SPLTG and SPLTG*SPFH are positive and statistically significant, these variables capture the portion of growth opportunities implicit in the strategic plan targets. Overall, the results of the robustness check confirm the findings of the previous information content model.

6. Conclusions

Despite a vast literature that devoted considerable attention to examining voluntary disclosure, very little empirical research examines the usefulness of strategic plan disclosures. We address the question of whether SPLTG and long-term forecast horizons are informative to investors and whether the credibility and usefulness of these targets are influenced by forecast horizons. As for the empirical analysis, the selected sample covers 224 strategic plans presented on a voluntary basis by Italian listed companies between 2002 and 2018.

On the first research question, we find that long-term growth targets show an incremental information content for investors as indicated by the positive association between this variable and the CAR measured at strategic plan's release. Therefore, our findings suggest that this quantitative information is perceived as credible and provides useful information to assess the firm' s value.

These results are important, because they shed light on one of the possible reasons that underlie the findings documented in prior literature. If Italian strategic plans are informative to investors and analysts (Baginski *et al.*, 2017), it will also be because of long-term growth targets that, when reported, are perceived as credible and useful.

Concerning the second research question, we investigate how investors perceive the forecast horizon's length. We, therefore, distinguish between strategic plans with short/mid forecasts horizon's length (forecast horizon of up to 3 years) and long-term forecast horizon (forecast horizon greater than 3 years). Our empirical analysis reveals that the 3-day CAR, all else being equal, is on average 2.0% lower for firms that release a strategic plan with a long-term forecast horizon. This negative market

reaction to long-term forecast horizons suggests that the forecast horizon's length is paramount for strategic plans' credibility. This is consistent with the theoretical framework according to which uncertainty increases in the long-run and investors can perceive voluntary disclosures as less credible to long-term forecast horizon. Consistent with the trend of few strategic plans issued during the period of financial crisis (2008–2013), our findings suggest that managers should not release strategic plans with long-term forecast horizon when uncertainty is high.

Finally, we investigate whether the long-term targets set out in strategic plans convey value relevant information to investors in conjunction with the forecast horizon. Our findings, contrary to our expectations, provide evidence that investors perceive long-term targets as credible regardless of the forecast horizon's length. Together with our previous findings, this result suggests that investors probably believe in management commitment to achieving these targets.

Overall, our research contributes to the current debate on the use of strategic plan as source of credible and useful information. Our research also shows important managerial implications. It highlights the need for management to improve the strategic plans disclosure by showing long-term growth targets. More importantly, this study should also inform managers of the consequence of issuing strategic plans with long-term forecast horizons.

However, our study is not without limitations. The analysis concerns the Italian context and it should be interpreted with caution, since our findings may not be extended to other countries because of different features regarding the legal environment, the capital markets and the investor protection law. Based on our findings, further investigation of the relations between strategic plan disclosure and market response needs to be performed. We, therefore, encourage researchers to examine other methods of strategic plan disclosure as well as the introduction of additional measures in firms' disclosure policies that could contribute to improving the credibility and usefulness of strategic plans for investors.

Appendix A. Variables Definition and Data Source

Table A.1.

Variable	Definition and data source
Dependent variables	
SPLTG_DISCL	Dummy variable equal to one if the strategic plan reports the SPLTG and zero otherwise. *Source*: Hand collected data from Strategic Plan presentations.
CAR	Cumulative abnormal return over the three-day trading window (days −1, 0, +1) around the strategic plan release. *Source*: share and index returns from Factset.
MBV After	Market to book value multiple calculated as market value the day one after the strategic plan release scaled by the company equity book value at the end of previous fiscal year. *Source*: Factset.

Table A.1. (*Continued*)

Variable	Definition and data source
Independent variables	
SPLTG	Strategic Plan Long-Term Growth targets computed as the compound annual growth rate (CAGR) implicit in the estimation of economic forecasts. For non-financial firms the base of CAGR is EBIT or EBITDA, while for financial institutions is net income. When the estimated results (EBIT or EBITDA or net income) relative to the last year of forecast horizon is reported in form of range, the CAGR considers the mid-point. *Source*: Hand collected data from Strategic Plan presentations.
D_SPFH	Dummy variable equal to one if the strategic plan forecast horizon is more than three years and zero otherwise. *Source*: Hand collected data from Strategic Plan presentations.
SPLTG*D_SPFH	Interaction dummy variable assigning a value equal to SPLTG if D_SPFH is equal to one and zero otherwise.
Control variables	
ROE	Return On Equity calculated as net income as of the fiscal year before the release date of strategic plan divided by the two fiscal period average of total shareholders' equity. *Source*: Factset.
LOSS	Dummy variable equal to one for negative earnings and zero otherwise. *Source*: Factset.
D_INSTINV	Dummy variable equal to one if the firm's share held by institutional investors exceeding 5% of the firm's shares outstanding and zero otherwise. *Source*: Factset.
LOGSIZE	Natural log of market value two days before the release date of strategic plan. *Source*: Factset.
MBV	Market to book value multiple calculated as the market value two days before the release date of strategic plan divided by the equity book value at the end of the previous fiscal year. *Source*: Factset.
LEV	Ratio of total financial debt divided by total assets at the end of the fiscal year before the release date of strategic plan. *Source*: Factset.
EARNVOL	Standard deviation of earning per share (EPS) over five prior years scaled by stock price two days before the strategic plan release. *Source*: Factset.
LOGAGE	Natural log of years the company has been listing from IPO date to the strategic plan releae. *Source*: Factset.
SEGMENTS	Natural log of one plus the number of firm operating segments as reported in the financial reporting as of the end of fiscal year before the strategic plan presentation. *Source*: Factset.
LIQ	Share turnover calculated as the ratio of the six-months average daily trading volume as of day −2 the strategic plan release scaled by the outstanding shares. *Source*: Factset.
INDEXVOL	Index volatility calculated as standard deviation of daily returns of FTSE Italia All Shares over the prior six months measured as of day −2 the strategic plan release. *Source*: Factset.
RETPRE	Price momentum calculated as the cumulative stock returns over prior thirty days from day −2 to day −31 relative to strategic plan release. *Source*: Factset.
D_INFOEVENT	Dummy variable equals to one if any price earnings release occurs during the three-day around the strategic plan release date (day −1 to day +1) and zero otherwise. *Source*: Factset.
D_CRISIS	Dummy variable equals to one if the strategic plan release is between 2008 and 2013 and zero otherwise. *Source*: Hand collected data from Strategic Plan presentations.
IMR	Invers Mills Ratio calculated using the parameters of the first stage of Heckman (1979) approach. *Source*: STATA 15 software.

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