A Tone Analysis of the Non-Financial Disclosure in the Automotive Industry

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Abstract: This study’s purpose is twofold. On the one hand, it analyzes the relationship between the profitability of firms and the tone of nonfinancial disclosures; on the other hand, it tests the relationship between the environmental, social, and governing (ESG) performance of firms and the tone of nonfinancial disclosures on the automotive sector under two different and competing approaches, which are incremental information and impression management. The sample is composed of 68 nonfinancial reports issued by 17 automotive organizations between the years 2016 and 2020. Data analysis proceeded in two stages. First, a content analysis was performed to assess the linguistic attributes of the nonfinancial disclosure. Second, an inferential regression analysis was performed to test the hypothesized associations between firms’ performance and tone of their disclosures. The results of this study are aimed at providing evidence of the determinants of the verbal tone in the corporate nonfinancial reporting in a specific industry.

Keywords: nonfinancial disclosure; automotive sector; tone analysis; financial performance; content analysis

1. Introduction

Over the last two decades, corporate reporting practices have diversified under the pressure of significant changes in the corporate external reporting environment; (see, for instance [1]). To face the volatility of the capital markets and challenges of sustainable development, companies must prove their ability to create long-term value for their stakeholders beyond the short-run financial performance. In this regard, traditional corporate reporting is not able to satisfy the wide range of stakeholder needs for its overall financial and backward-looking nature, the scarcity of procedures on risk assessment, and the total absence of governance structures to ensure accountability and transparency [2–4].

The current reporting trend suggests that the competitiveness of a company today lies in its ability to establish and communicate the link between financial and nonfinancial business metrics. Studies have revealed that voluntary nonfinancial disclosure enhances transparency, improves reputation and brand value, affects firm value, increases share prices, and reduces the cost of capital [5–8]. In particular, nonfinancial reporting can be adopted by firms to disclose information related to their sustainability activities, which today have been affected by the COVID-19 pandemic [9]. Indeed, in response to the events caused by the outbreak of COVID-19, companies updated their sustainability strategies and related targets, paying particular attention to the emerging expectations of stakeholders and the social needs of local communities. They also updated their reporting processes in relation to new, relevant ESG issues [10].

A stream of literature has studied the link between the tone of voluntary nonfinancial disclosures and nonfinancial performance by finding mixed results about it [11–13]. Other
scholars analyzed the link between the tone of voluntary nonfinancial disclosure and financial performance. Within this framework, previous studies analyzed the impact of the tone of voluntary information in analysts’ reports [14,15]. Abhayawansa [14] found that most of the nonfinancial disclosure is conveyed in a positive, rather than a negative or neutral, tone. Hummel and colleagues [15] found that there is a significant inverse relationship between financial performance and tone of CSR disclosure. Both links (the link between the tone of voluntary nonfinancial disclosures and nonfinancial performance and the one between the tone of voluntary nonfinancial disclosure and financial performance) are observed under two different and competing perspectives, namely, incremental information and impression management [16,17].

Because tone management in NFD is primarily cross-sectional, the published literature on it does not adequately address the effect of the narrative features of a disclosure strategy in a single industry. Indeed, there is a dearth of study on the analysis of specific ICD trends that take into consideration the peculiarities of a specific industry. Hence, this study will focus on a strategic industry (automotive), the operations of which are generally spread all over the world. This sector is particularly interesting given the relevance of pollution and environmental issues especially in the last years [18]. Therefore, there is room for future research with regard to the tone at the top in nonfinancial information [19,20] and to the testing of the relationship between the tone of nonfinancial disclosures (NFD) and (non)financial performance of the firm. Indeed, concerning financial performance, despite the impression–management approach being widely supported in previous studies, especially in the area of voluntary disclosure [16], there is a need to test both the incremental and impression–management approach viewpoints with regards to the relationship between financial performance and disclosure tone. Instead, concerning nonfinancial performance, there is no clear consensus on which theoretical approach best describes the link between nonfinancial performance and the tone of nonfinancial disclosures. More specifically, the link between the three pillars of nonfinancial performance (environmental, social and governance) and the disclosure tone is still under-researched. Hence, this study aims to advance some knowledge on this.

Accordingly, the main research question this paper addresses is the following:

RQ1. Does (non) financial performance affect the tone of nonfinancial disclosure in the automotive industry?

The remainder of the paper is structured as follows. In the following section the authors analyze the relevance of the Global Automotive Industry; next, they develop a set of research hypotheses. In the following section, the methodology used to test the research hypotheses is delineated and described before the empirical results are presented. Finally, the results are discussed and conclusions are provided, including suggestions for future research.

2. Literature Review

2.1. Tone Analysis in (Non-)Financial Corporate Reporting

The tone analysis of corporate disclosure refers to the language used in the corporate reporting (also referred to as “tone at the top”, [19,20], which can be either more optimistic, more pessimistic or neutral with regard to the company’s corporate performance [21]. Two opposing theories can explain the use of differentiated narrative features in nonfinancial reporting. In line with signaling theory and voluntary disclosure theory, incremental information theory argues that companies provide additional information to reduce information asymmetry [22,23]. According to sociopolitical theories of disclosure, however, companies can adopt a more favorable disclosure tone compared to their performance to influence stakeholders [24]. In this regard, following the impression–management literature, it is possible to distinguish between two approaches: concealment and attribution [24]. Concealment refers to the communication strategy aimed at either emphasizing good news or obfuscating bad news [24]. Attribution can be defined as a “defensive framing tactic that shifts the blame for negative outcomes away from themselves,” and in a corporate reporting
context, “entails managers attributing positive organizational outcomes to internal factors (‘entitlements’) and negative organizational outcomes to external factors (‘excuses’).” [24] (p. 126). Most literature has focused on the relationship between the tone of voluntary disclosures and nonfinancial performance (e.g., [16]). However, some streams of literature also explored the association between economic performance and the tone of nonfinancial information (e.g., [11]).

2.2. Hypothesis Development
To investigate the reasoning underlying different disclosure strategies, two competing viewpoints have been tested: the incremental information theory and impression–management approach [16,17]. The first asserts that managers do not disclose information for manipulative purposes but to reduce the deleterious effects of information asymmetries [22]. Following this line of reasoning, Du and Yu [25] and Clarkson et al. [26] reported that the CSR disclosure tone is value relevant [25,26].

On the contrary, from the impression–management perspective, managers disclose such information in a manner intended to distort readers’ perceptions of the firm’s performance. Prior studies based on the impression–management approach have shown a relationship between disclosure tone and litigation risk (e.g., [27]). Similarly, Rogers and Stocken [28] revealed that managers will issue biased earnings forecasts when investors have limited ability to detect misrepresentation [28]. Misrepresentations can also result in financial statement fraud [29].

Furthermore, a study by Hummel et al., [15] proved that there is a significant inverse relationship between financial performance and the tone of CSR disclosure [15]. Abhayawansa [14] found that most of the intellectual capital disclosure (ICD) in an analyst’s reports is conveyed in a positive, rather than a negative or neutral, tone [14]. Therefore, the reliability and the utility of this type of voluntary disclosure is under scrutiny.

Even though most prior research findings support the impression–management approach, especially in the area of voluntary disclosure [16], both the incremental information and impression–management viewpoints will be tested herein; therefore, we pose the following research hypotheses:

Hypothesis 1 (H1). There is a relationship between the profitability of automotive firms and the positive tone of nonfinancial disclosures.

Some studies also tested the impression management hypothesis in order to analyze the relationship between the tone of voluntary disclosures and nonfinancial performance [13].

Within this framework, Melloni et al. [13] tested the “management obfuscation hypothesis” [30], which stems from the impression–management approach. In particular, authors analyzed the link between weak ESG performance and optimistic disclosure tone in integrated reports; however, their results did not allow them either to confirm or reject the management obfuscation hypothesis [13]. Other scholars test both the incremental information and impression–management approaches. For instance, Arena et al. [16] found that the tone of environmental disclosures is related to future environmental performance, thus confirming the incremental information hypothesis. Furthermore, Hummel and colleagues [15] found that social performance positively affects the tone of nonfinancial disclosures in both the U.K. and the U.S. [15]. Hanh and Lufts [31] provided evidence that companies adopt different legitimating strategies in corporate disclosure of bad news that are either more substantial or more symbolic in nature, thus supporting either an incremental information or an impression–management approach [31]. Similar results were found by Michelon and colleagues, who addressed the limited relevance of CSR disclosure in terms of accountability [32]. Since there is no clear consensus on which theoretical view (incremental information versus impression–management) best describes the link between nonfinancial performance and the tone of nonfinancial disclosures, the following hypotheses will be tested:
Hypothesis 2a (H2a). There is a relationship between the ESG performance of automotive firms and the positive tone of nonfinancial disclosures.

More specifically, environmental scandals, such as the one that involved BP’s deep-water platform, triggered the take-up of research investigating the relationship between environmental performance and the tone of sustainability disclosure to shed some light on the prevalence of either the impression-management or incremental information approach in the corporate disclosure strategy. Mixed results have been found in prior literature since Al-Tuwaijri, Christensen, and Hughes II [33] provided evidence that better environmental performance is associated with a positive tone in environmental disclosure [33]. Similarly, a positive tone in environmental reporting drives better future environmental performance [16]. Hence, companies are adopting a disclosure strategy in line with the incremental information approach. However, other studies provided contrasting evidence, suggesting that firms both emphasize good environmental performance and obfuscate poor environmental performance in their nonfinancial disclosure [13,34]. The link between environmental performance and environmental disclosure is still under-researched in the automotive context. Hence, this study aims to test the following statement:

Hypothesis 2b (H2b). There is a relationship between the environmental performance of automotive firms and the positive tone of nonfinancial disclosures.

With regard to social performance and tone of disclosure, the prior literature suggests that firms adopt an impression-management approach by obfuscating the worst social performance with the less concise reports [13]. However, more recent studies reported that social performance is positively related to the optimistic tone of intellectual capital disclosure, supporting the incremental information approach [11]. Similarly, a lower ambiguous tone is used in U.S. banks’ 10-K filings when the bank shows a high degree of social capital [35]. Since the relationship between social performance and the optimistic tone in social disclosure has not yet been widely investigated in the automotive industry, the following hypothesis has been formulated:

Hypothesis 2c (H2c). There is a relationship between the social performance of automotive firms and the positive tone of nonfinancial disclosures.

The relationship between governance performance and disclosure tone has also received some attention from scientific research. In particular, better performance in corporate governance addresses a more optimistic tone in nonfinancial disclosure, supporting the incremental information theory [36]. However, some more controversial evidence has also been reported. More specifically, Beretta and colleagues [11] started from the assumption that governance performance is a multi-dimensional construct, made up of different components that can show different if not opposite performance [37]. Corporate governance includes, among others, strategic vision and shareholder rights: the former supports the incremental information approach with regard to the tone of corporate disclosure, whereas the latter provides evidence for the adoption of impression management [37]. Similarly, Bassyouny et al. [38] found that older, female and financially expert CEOs adopt a less positive tone, whereas narcissistic CEOs are more likely to adopt a positive tone in nonfinancial disclosure [38]. The automotive industry has received little attention with regards to the analysis of the relationship between governance performance and the tone of sustainability disclosure. Hence, this study will address the following statement:

Hypothesis 2d (H2d). There is a relationship between the governance performance of automotive firms and the positive tone of nonfinancial disclosures.
3. Global Automotive Industry

The automotive sector is both a capital- and knowledge-intensive industry, which consists of a complex supply chain spread all over the world. The number of large companies in the business is increasing, with production shifting towards emerging economies. China is the world’s first automobile market (with 28.7% of world production in 2019), followed by the U.S., Japan and Germany [39]. In the upcoming years, production volume is projected to follow an increasing demand for vehicles in the emerging countries of Asia, South America and Central and Eastern Europe. The automotive industry is of strategic importance for the entire global economy as it is considered the main driver for growth, stability, and technological progress for several reasons. In 2017, the industry accounted for 3% of world GDP and employed nearly 14 million workers [40]. Furthermore, the auto industry is one of the largest investors in research and development, behind only healthcare and computing and electronics, of which several manufacturers lead the top 10 [41].

The outlook for the global automotive market in 2020 is affected by the COVID-19 pandemic. The IHS Market estimates that due to the pandemic, 2020 global auto sales are expected to decline by at least 22% from 2019. The COVID-19 outbreak is set to exacerbate the numerous challenges already facing the auto industry, including decarbonization and electrification. The future of the automotive industry will to a large degree depend on its ability to make changes to business models above and beyond those required by technological reconfiguration.

The automotive ideal industry is ideal for investigating the role of (non)financial performance on the “tone at the top” for two reasons. First, it is characterized by few large players, which are highly visible to the markets, so their disclosure is price sensitive [42]. Second, larger players are also recognized to be more affected by tone management [24].

4. Materials and Methods

4.1. Sample Selection and Data Collection

To test the research hypotheses, all the nonfinancial disclosures issued by the top 10 automotive manufacturers worldwide by revenue in the last 5 years were downloaded from each company’s website. In addition, 8 companies were added to the sample in order to have at least one company representing the biggest automotive markets. All the resulting reports were manually screened. A total of 68 nonfinancial reports issued by 17 companies based in 8 different countries that referred to the period 2016–2020 were downloaded. These reports constitute the study sample.

These 68 reports pertain to 17 different firms on various continents for different years. Details related to the sample composition are provided in Table 1.

Financial and nonfinancial data were collected from the Eikon DFO Database (Datatream and Asset4) for all 17 different firms for the years from 2016 to 2020.
Table 1. Sample composition by firms, continents and years.

| Firm          | Continent | Year |
|---------------|-----------|------|
| BMW           | Europe    | 2016 | 11   |
| Daimler       | Asia      | 2017 | 17   |
| FCA Group     | Americas  | 2018 | 17   |
| Ford          |           | 2019 | 17   |
| Geely Global  |           | 2020 | 6    |
| General Motors|           |      |      |
| Honda         |           |      |      |
| Hyundai       |           |      |      |
| Motor Co      |           |      |      |
| Kia Motors    |           |      |      |
| Mazda         |           |      |      |
| Nissan Motor  |           |      |      |
| Groupe PSA    |           |      |      |
| Subaru        |           |      |      |
| Suzuki        |           |      |      |
| Tata Group    |           |      |      |
| Toyota        |           |      |      |
| Volkswagen    |           |      |      |

4.2. Data Analysis

Data analysis proceeded in two stages. First, a content analysis was performed to assess the linguistic attributes of the nonfinancial disclosure. Second, an inferential regression analysis was performed to test the hypothesized associations between firms’ performance and the tone of disclosures.

4.3. Content Analysis

Linguistic attributes of the communication contained in the nonfinancial disclosures tended to be investigated using content analysis [43,44] since it represents a research technique able to ensure replicability and validity of results [45].

In particular, the context in which this analysis was conducted was captured by the research question that this study aims to answer. Along with this study, the text unit is adopted as a unit of analysis [46,47]. A coding technique was adopted to classify text units according to the categories in Table 2 [46,47].

Coding was performed using computer assisted qualitative data analysis software (CAQDAS), namely, NVivo 12 in order to increase the accuracy and transparency of the data analysis by providing a reliable and general picture of the data [48,49]. According to Silverman (2013, p. 273) “the main purpose of using NVivo was to code data into a broad brushstroke coding frame”. The use of specific qualitative analysis software can be justified by a variety of benefits that have been identified in the literature, such as the aggregation, the autocoding and the application of common word-count techniques [50].

According to previous studies, the mere investigation of the crude volume of nonfinancial disclosures may be misleading [43,51]; therefore, quality measures were introduced with reference to disclosure tone and time orientation.

First, the disclosure tone was captured by the coding text units according to a word classification scheme derived from Loughran and McDonald’s Financial Sentiment Dictionary [52]. According to previous studies, this dictionary was designed to identify the tone of content in corporate disclosures [53,54]. Therefore, each text unit was classified as embodying a positive disclosure tone if it contained one of the words listed in the positive word lists in the dictionary. On the other hand, each text unit was classified as embodying...
a negative disclosure tone if it contained one of the words listed in the negative word lists in the dictionary.

Table 2. Definitions of content categories.

| NFD Tone [52]          | Positive                                      | A text unit including good news for the company. |
|------------------------|----------------------------------------------|--------------------------------------------------|
|                        | Negative                                      | A text unit including bad news for the company.  |
| Time orientation [52,55–60] | Forward-looking                                | A text unit referring to the firm’s future prospects, strategy and expectations. |
|                        | Backward-looking                               | A text unit referring to the past.               |
| Combined [52,57]       | FLI-Positive                                   | A text unit referring to the firm’s future prospects, strategy and expectations presented with a positive tone. |

Second, the time orientation was also measured by referring to the same source, Loughran and McDonald, combined with dictionaries identified in previous studies [52,55–60]. Consequently, text units are categorized as forward-looking if they contain references to future development of the firm or as backward-looking if the sentences have a historical orientation.

Finally, a combination of positive and forward-looking information has been captured with reference to the Loughran and McDonald, combined with dictionaries identified in previous studies [52,57]. Consequently, text units are categorized as forward-looking positive if they contain references to future development of the firm and if contained one of the words listed in the positive word lists in the dictionary.

4.4. Statistical Analysis

Next, the hypotheses were tested using multiple linear regression (Table 3, Equation (1)).

\[
TONE_{\text{POSITIVE}} = \beta_0 + \beta_1 \text{DECL\_FIN\_PERF} + \beta_2 \text{ESG\_SCORE} + \\
\quad + \beta_3 \text{TIME\_BACKWARD} + \beta_4 \text{TIME\_FORWARD} + \beta_5 \text{EUROPE} + \beta_6 \text{SIZE} + \varepsilon
\]  

\[
TONE_{\text{POSITIVE}} = \beta_0 + \beta_1 \text{DECL\_FIN\_PERF} + \beta_2 \text{ENV\_SCORE} + \\
\quad + \beta_3 \text{GOV\_SCORE} + \beta_4 \text{SOC\_SCORE} + \beta_5 \text{TIME\_BACKWARD} + \\
\quad + \beta_6 \text{TIME\_FORWARD} + \beta_7 \text{EUROPE} + \beta_8 \text{SIZE} + \varepsilon
\]  

The dependent variable, \(TONE_{\text{POSITIVE}}\), represents the positive tone of the disclosures. It is captured by the following ratio “\((\text{Positive} – \text{Negative})/(\text{Positive} + \text{Negative})\)”, which is the count of positive words minus the count of negative words divided by the sum of positive and negative word counts, or total word count. This is a relative measure that can be implemented to identify if a text unit is relatively positive or negative (greater or lower than 0), as well as the magnitude of the relative sentiment [61,62].

In terms of independent variables, a dummy variable is configured to indicate whether or not a firm’s financial performance is declining (DECL\_FIN\_PERF) while the ESG\_SCORE is a continuous variable reflecting each firm’s environmental, social and governance performance [63]. Additional independent variables have been added in Equation (2), which represents the ESG performance according to the ESG Pillar Scores proposed in the database Asset4 [63]. The ENV\_SCORE captures the environmental performance; the GOV\_SCORE represents the governance performance; and the SOC\_SCORE provides information related to the social performance.
Table 3. Variables definition and measurement.

| Variable Acronym | Variable Definition | Variable Measurement |
|------------------|---------------------|----------------------|
| **Dependent Variable** | | |
| TONE_POSITIVE | Positive Disclosure Tone | (Positive text units – Negative text units) / (Positive text units + Negative text units) |
| **Independent Variables** | | |
| DECL_FIN_PERF | Declining Financial Performance | Dummy variable equal to 1 if the firm’s ROE is decreasing, 0 otherwise. Source: Datastream |
| ESG_SCORE | ESG Score | Source: Thomson Reuters Asset4 |
| ENV_SCORE | Environmental Pillar Score | Environmental Pillar Score Source: Thomson Reuters Asset4 |
| GOV_SCORE | Governance Pillar Score | Governance Pillar Score Source: Thomson Reuters Asset4 |
| SOC_SCORE | Social Pillar Score | Social Pillar Score Source: Thomson Reuters Asset4 |
| **Control Variables** | | |
| SIZE | Size | Balance Sheet Total Assets. Source: Datastream |
| TIME_FORWARD | Forward-looking Disclosure | Forward-looking Text Units. |
| TIME_BACKWARD | Backward-looking Disclosure | Backward-looking Uext Units. |
| EUROPE | Continent | Dummy Variable Equal to 1 if the Firm is from Europe; 0, otherwise. |

Control variables are added as well. First, according to previous studies, firm size is considered a potential predictor of the tone of voluntary disclosures although most of the reported findings are not statistically significant [15,64,65]. Thus, the variable SIZE has been added to capture firm size. Second, orientation of text units has been captured by the variables TIME_FORWARD and TIME_BACKWARD. Historically oriented nonfinancial disclosures are more frequent in analyst recommendations to sell the firm’s stock, but they are less frequent when analysts provide a hold recommendation [66]. Forward-looking disclosures are relevant since they enhance the ability of the market to predict a firm’s future performance [67]; in addition, analysts’ forecasts are usually based on forward-looking information [68].

Finally, since different geographical locations could impact the tone of disclosures [47,69,70], a continent dummy variable (EUROPE) has been added.

5. Results

Table 4 details summary statistics for the variables subjected to inferential analyses with a correlation matrix provided in Table 5 to give an introductory overview in terms of bivariate associations.
Table 4. Descriptive statistics.

| Variable           | N. Obs | Mean   | Std. Dev. | Min   | Max   |
|--------------------|--------|--------|-----------|-------|-------|
| TONE_POSITIVE      | 68     | 0.173  | 0.119     | −0.086| 0.450 |
| DECL_FIN_PERF      | 54     | 0.593  | 0.496     | 0.000 | 1     |
| ESG_SCORE          | 62     | 74.453 | 13.589    | 46.930| 93.440|
| ENV_SCORE          | 62     | 82.120 | 12.392    | 46.590| 98.860|
| GOV_SCORE          | 62     | 66.258 | 17.312    | 21.760| 95.050|
| SOC_SCORE          | 62     | 72.744 | 19.839    | 31.180| 96.100|
| TIME_BACKWARD      | 68     | 206.927| 113.475   | 8.000 | 571.000|
| TIME_FORWARD       | 68     | 1116.926| 688.383  | 79.000| 3519.000|
| EUROPE             | 68     | 0.279  | 0.452     | 0.000 | 1.000 |
| SIZE               | 6      | $2.02 \times 10^{10}$ | $4.45 \times 10^{10}$ | $4.46 \times 10^{7}$ | $1.92 \times 10^{11}$ |

The data were analyzed using a regression method of panel data with Stata 13. In order to choose between the random effects (a model with nondifferent (constant) slope but with varying or different intercepts based on cross-section) or fixed effects (models with nondifferent slopes (constant) but with varying or different intercepts based on cross-section) [71], the Hausman test was performed [72]. Results showed that the random effects model should be preferred.

The regression results are presented in Table 6. They did not reveal a statistically significant relationship between a firm’s declining financial performance and positive tone of nonfinancial disclosures. As such “Hypothesis 1 (H1): There is a relationship between the profitability of automotive firms and the positive tone of nonfinancial disclosures” is not supported.

However, by contrast the results demonstrated that higher nonfinancial performance in firms is associated with a positive tone of nonfinancial disclosures, thereby supporting Hypothesis 2a (H2a) (“There is a relationship between the ESG performance of automotive firms and the positive tone of nonfinancial disclosures”). More specifically, a statistically significant relationship between social and environmental performance and the positive tone of nonfinancial disclosure was detected while no significant relationships were found between the governance performance and the positive tone of nonfinancial disclosures. As such, Hypothesis 2b (H2b) (“There is a relationship between the Environmental performance of automotive firms and the positive tone of nonfinancial disclosures”) and Hypothesis 2c (H2c) (“There is a relationship between the Social performance of automotive firms and the positive tone of Non-Financial Disclosures”) are supported, whereas Hypothesis 2d (H2d) (“There is a relationship between the Governance performance of automotive firms and the positive tone of Non-Financial Disclosures”) is not supported.

A summary of the outcome of the empirical analysis is presented in Table 7.

In addition, with respect to the control variables, results show that larger firms are associated with a more optimistic tone for their NFD. The continent variable, regarding the continent on which the company’s headquarters is based, is not statistically significant; thus, the tone of the NFD is spatially invariant.
Table 5. Correlation matrix.

|          | TONE_POSITIVE | DECL_FIN_PERF | ESG_SCORE | ENV_SCORE | GOV_SCORE | SOC_SCORE | TIME_BACKWARD | TIME_FORWARD | EUROPE | SIZE |
|----------|---------------|---------------|-----------|-----------|-----------|-----------|---------------|--------------|--------|------|
| TONE_POSITIVE | 1.0000 | -0.0104 | 1.0000 |
| DECL_FIN_PERF   | 0.8270 | 0.5995 | -0.0260 | 1.0000 |
| ESG_SCORE       | 0.3962 | 0.6546 | 0.1834 | -0.0156 | 0.7830 | 1.0000 |
| ENV_SCORE       | 0.2486 | 0.9127 | 0.0000 *** | 0.0000 |
| GOV_SCORE       | 0.3777 | 0.1331 | 0.3647 | 0.2662 | 0.9000 |
| SOC_SCORE       | 0.2129 | 0.0134 | 0.0253 | 0.0507 | 0.3599 | 1.0000 |
| TIME_BACKWARD   | 0.0667 * | 0.8256 | 0.0000 *** | 0.0000 *** | 0.0043 *** |
| TIME_FORWARD    | -0.2588 | 0.0286 | 0.2230 | 0.3734 | -0.1856 | 0.0000 |
| EUROPE          | 0.0331 * | 0.6655 | 0.0429 * | 0.0028 *** | 0.1531 | 0.0185 ** |
| TIME_FORWARD    | -0.3380 | 0.0550 | 0.2474 | 0.3975 | -0.1640 | 0.2628 | 0.0975 | 1.0000 |
| EUROPE          | 0.0930 *** | 0.6016 | 0.0052 ** | 0.0014 *** | 0.0292 | 0.0120 ** | 0.0000 *** |
| SIZE            | 0.4990 | 0.0280 | -0.1830 | -0.3889 | 0.0751 | -0.0254 | -0.0829 | -0.1299 | -0.2723 | 1.0000 |
| SIZE            | 0.0000 *** | 0.8345 | 0.4447 | 0.0068 *** | 0.6113 | 0.0856 | 0.5116 | 0.3025 | 0.0184 ** |

* *, **, *** indicate a significance degree between 0.10 and 0.05, 0.05 and 0.01, and 0.01 and 0, respectively. p-values are in brackets.
Table 6. Empirical results of the statistical models.

| Statistical Model | Model 1               | Model 2               |
|-------------------|-----------------------|-----------------------|
| **Dependent Variable: TONE_POSITIVE** |                      |                       |
| DECL_FIN_PERF     | 0.0080 (0.0154)       | 0.0042 (0.0155)       |
| ESG_SCORE         | 0.0037 ** (0.0016)    | 0.0031 * (0.0018)     |
| ENV_SCORE         | 0.0037 ** (0.0016)    | 0.0031 * (0.0018)     |
| GOV_SCORE         | −0.0005 (0.0009)      |                       |
| SOC_SCORE         | 0.0020 * (0.0012)     |                       |
| TIME_BACKWARD     | 0.0009 ** (0.0005)    | 0.0010 * (0.0005)     |
| TIME_FORWARD      | −0.0002 (0.0001)      | −0.0003 *** (0.0000)  |
| EUROPE            | −0.0155 (0.0601)      | −0.0381 (0.0614)      |
| SIZE              | $1.18 \times 10^{-12}$ ** ($4.91 \times 10^{-13}$) | $1.31 \times 10^{-12}$ *** ($5.07 \times 10^{-13}$) |
| cons              | −0.0475 (0.1107)      | −0.1252 (0.1346)      |

*, **, *** indicate a significance degree between 0.10 and 0.05, 0.05 and 0.01, and 0.01 and 0, respectively. Standard errors are in brackets.

Table 7. Results of the hypothesis testing.

| Hypothesis 1 (H1): There is a relationship between the profitability of automotive firms and the positive tone of Non-Financial Disclosures. | Not supported |
| Hypothesis 2a (H2a): There is a relationship between the ESG performance of automotive firms and the positive tone of Non-Financial Disclosures. | Supported |
| Hypothesis 2b (H2b): There is a relationship between the environmental performance of automotive firms and the positive tone of Non-Financial Disclosures. | Supported |
| Hypothesis 2c (H2c): There is a relationship between the social performance of automotive firms and the positive tone of Non-Financial Disclosures. | Supported |
| Hypothesis 2d (H2d): There is a relationship between the governance performance of automotive firms and the positive tone of Non-Financial Disclosures. | Not Supported |

Robustness Tests

To explore the inverse relationship of whether the tone had an impact on financial and nonfinancial performance, a regression analysis was performed with the positive tone of NFD as an independent variable and the lagging variables of financial and nonfinancial performance as alternate dependent variables [16]. The results showed insignificant rela-
relationships between both types of performance and the NFD tone, which was in line with expectations [13,14,46,65].

Finally, as suggested by previous studies, a Breusch–Pagan was performed as a postestimation test [73]. Results of the test confirmed the adequacy of random effects for the models.

6. Discussion

This study aimed to provide evidence of the determinants of the verbal tone in corporate nonfinancial reporting in a specific industry: automotive. Prior research in this industry focused on one case company only by analyzing the tone at the top of its price-sensitive press releases [74]. Bozzolan and others (2015) found that different stakeholder groups had different degrees of saliency in driving the corporate narrative tone and reacted differently to the corporate disclosure. As such, narrative corporate disclosure seemed to affect the sentiment in the financial markets rather than reflect corporate performance. However, results reported in this study, based on a larger dataset, were not aligned to those found in the case study by Bozzolan et al. (2015). Empirical findings indeed suggested an incremental information pattern, rather than an impression–management one, in the corporate reporting strategies displayed by the companies operating in the automotive industry. More specifically, evidence from this study did not find support for the bias in a nonfinancial corporate disclosure tone associated with poor ESG performance. This result is in line with more recent research into tone analysis on sustainability reporting, which argued that those companies reporting more optimistic disclosure were also better ESG performers, whereas poorer performers accounted for some issues in their sustainability management when disclosing nonfinancial information [26]. However, evidence from this study contrasted with that stream of the literature reporting an impression–management approach in the management of the corporate disclosure tone (e.g., 74, 13, 24). This result could be due to the fact that companies are more and more aware of the negative consequences of misreporting. The increased awareness on ESG topics and related scandals indeed fuelled the introduction of a number of ESG datasets available to financial analysts and stakeholders at large, which can be easily used to check for the credibility of corporate sustainability reporting. Therefore, the incentive to adopt impression–management strategies in nonfinancial reporting to influence financial markets could somehow be mitigated. Another possible explanation for the contrasting results could be that, over time, international standard setters introduced more and more mandatory disclosure standards for reporting ESG performance. Hence, corporations are more regulated in their sustainability reporting, which can in turn reduce the room and opportunity for misconduct in disclosing nonfinancial performance. As for the detailed analysis of the pillars forming the ESG disclosure, results confirmed prior research, which supports the incremental information hypothesis with regards to both the social [75] and environmental domains [16,33]. Hence, empirical findings from this study contrasted with that part of the literature suggesting an impression–management approach in the disclosure strategy of either social or environmental performance [13,34]. As argued in prior research, governance performance is a multi-dimensional construct that needs to be analyzed in full detail to capture the effect of the different features on disclosure tone [37,38]. This could be one of the reasons that the results from this study did not achieve a conventional significance level. Hence, more research aimed at disentangling the role of different items contributing to governance performance in relation to tone analysis is desirable.

7. Conclusions

This paper was aimed at analysing whether (non)financial performance affected the tone of nonfinancial disclosure in the automotive industry. Results showed that, in line with previous studies, there was a relationship between the ESG performance of automotive firms and the positive tone of Non-Financial Disclosures (NFDs) [13,32]. Additionally, as provided in previous research, findings of this study showed that there is a relationship
between the environmental performance of automotive firms and the positive tone of NFDs [16]. Finally, we found that there is a relationship between the social performance of automotive firms and the positive tone of NFDs [35].

Theoretical and practical implications can be derived from this study. Concerning its practical implications, a wide range of stakeholders may be interested in the findings of this study. First, since investor judgments are influenced by positive and negative disclosure tones [76], analysts and investors could take advantage of the results of this research by providing more accurate investment decisions based on the assumption that managers adopt different disclosure strategies with regard to different types of company performance [77]. Therefore, their investment decisions could be grounded on disclosure that fairly reflects their respective firm’s ESG engagement [78]. Second, corporations can benefit from this study by implementing those reporting practices that are more capable of conveying and stimulating ESG performance. In particular, managers responsible for preparing sustainability reports should take advantage of this study and consider using a common vocabulary as a reference to ensure consistency between information disclosed and the company’s economic performance; otherwise, reliability and the utility of additional information will be questioned, and the costs arising from information disclosure could exceed the benefits. This implies close cooperation between financial and nonfinancial departments. Third, this study could also support policymakers and standards setters to define meaningful frameworks to promote comparability and enhance the reliability of nonfinancial information. Finally, society as a whole could gain a better understanding of the relationship between a firm’s performance and its related reporting behaviours.

Concerning theoretical implications, this study adds to the extant literature in different ways. First, it contributes to the nonfinancial disclosure theory [19,22] by providing further evidence concerning the different reporting strategies adopted by companies [24]. In particular, by differentiating between financial and nonfinancial performance, the results of this study demonstrate that disclosure strategies vary according to different types of performance. More specifically, by testing the relationship between the ESG performance and the NFD tone, this study enriches the role of the firm in fulfilling a wide range of stakeholder needs. In line with classical signaling [79], legitimacy [80] and stakeholder theories [81], this study is the first of its kind to advance some knowledge related to the incremental information and impression–management approaches in the larger automotive sector. Second, this research extends extant knowledge on the role of NFDs in reporting the attainment of nonfinancial performance [14,46,65]. Notably, by analyzing different dimensions of ESG performance, it provides a reply to that part of the literature arguing that an overall index of corporate social performance might not be reflective of the complexity that occurs in practice [82].

More generally, in common with applied research, this study is not without limitations that open up interesting avenues for future research. First, only a limited set of endogenous and exogenous variables with an impact on the relationship between the tone of NFD and the (non)financial performance were included in the research model. In particular, further research could adopt more sophisticated econometric models to analyze the individual effect of the different components of the ESG performance pillars. Second, a further methodological limitation could be related to the adoption of commonly used dictionaries in the tone analysis to estimate the semantic properties of disclosures. Next, it is important to emphasize that assessing disclosure quality is a complex matter that is subject to debate and disagreement. In fact, while financial statement disclosures are regulated by generally accepted concepts of quality, it is not clear how narrative disclosure quality can be robustly assessed. In the interests of replicability, from a methodological standpoint, further research could consider the development of customized measures of disclosure quality since content analysis with automatic codification is an emerging practice in accounting, and taxonomies are still to some extent imprecise. Finally, data related to the ESG performance were collected on a single dataset. Therefore, results could be biased...
from the peculiar measurement model adopted from the Asset4 method of capturing ESG performance. Future research could look for either alternative public or hand-collected datasets to corroborate results from this study.

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