

# An exploration on measuring and assessing ‘Tone at the Top’ with Dutch listed companies (AEX)

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Received 29 June 2019 | Accepted 9 October 2019 | Published 28 October 2019

## Abstract

This article explores the measurement and assessment of Tone at the Top (TATT) in CEO letters of Dutch listed companies (AEX) over a 10 year period. A combination of quantitative (text analysis) and qualitative research (close reading) is conducted. The main findings indicate that measured TATT is relatively stable for AEX companies over time. However, at closer examination significant deviations from the mean TATT are evident. Possible explanations are provided for these out-of-range TATT scores through the identification of several variables, e.g., difficult operating circumstances, investments and disinvestments, changes in the composition of supervisory boards, corporate governance, and compliance with law and regulations.

## Practical relevance

Tone at the Top (TATT) is an elusive concept and difficult to quantify. Nonetheless, most practitioners and academics are of the opinion TATT may have a significant impact on company performance. This article makes an attempt to measure and assess this concept and its relevance for at least three reasons:

1. An attempt to quantify the TATT concept, to the authors’ knowledge, has never been done before. Text analysis (DICTION) is used as quantification tool for measuring TATT, utilizing DICTION’s 5 master variables. Based on a literature review, these master variables are linked to the TATT concept. The resulting scores are supplemented by close reading, in line with Merkl-Davies and Brennan (2007).
2. Research on TATT within a Dutch corporate setting, over a 10 year time span, has not been executed so far. However, this time span of 10 years enables the authors to possibly capture changing economic environments, which differs from existing literature that is based merely on shorter periods, i.e., a 2 year period (2007–2008).
3. This article may reveal outcomes with a possible signaling function pertaining to potential unethical behavior of top management (prospective view).

## Key words

Tone at the top, CEO letters, DICTION

## 1. Introduction

Several corporate scandals have occurred during recent decades. Unravelling the underlying causes of each scandal can be complicated. Due to these scandals, regulations have increased significantly, in particular for listed companies. In addition to SOx in the United States (Cohen et al. 2012) we see intensified regulation in the Nether-

lands as well.<sup>1</sup> The Dutch Corporate Governance Code has been revised.<sup>2</sup> Basel IV is currently under discussion.<sup>3</sup> However, TATT has also been mentioned as one of the drivers of financial scandals. It seems that scandals, such as Ahold, Vestia and Imtech, may partly be explained by an unethical tone of top management.

This article focuses on the concept of TATT within a Dutch context, in particular at AEX-listed companies over a period of 10 years. This topic has received limited academic attention until now, however the impact of TATT can be significant (Patelli and Pedrini 2015). Exploring the quantification of TATT in a structured way is worthwhile and can provide valuable insights. In this research, CEO letters in the financial statements are used as written message from which TATT can be measured. The problem statement of this article is: "Tone at the Top is hard to quantify, whilst the impact of Tone at the Top might be high". From this, the resulting Central Research Question (CRQ) is: "*To what extent is it possible to quantify Tone at the Top at AEX-listed companies from 2007 to 2016 and consequently, what findings and trends can be derived from the results?*"

The disposition of this article is as follows. Section 2 discusses prior research and outlines the different definitions and theories regarding TATT and related concepts such as leadership, culture and communication. TATT has been defined in various ways and its measurement is not unequivocal. Thereafter, the use of CEO letters as a basis for quantifying TATT is discussed (Amernic et al. 2010). Subsequently, possible explanations for out-of-range CEO letters are provided, based on a literature review. This section concludes with a theoretical framework. Section 3 describes the research design. The textual-analysis software program DICTION is explained, including the (master) variables, i.e., certainty, optimism, activity, realism and commonality. In addition, the composition of the sample is discussed. Section 4 presents analysis and results. Apart from the quantitative DICTION analysis, the qualitative analysis is described in this chapter. Finally, Section 5 elaborates on the outcomes of this study, its contribution and its limitations and recommendations for future research.

## 2. Literature Review

This section provides relevant definitions, prior literature, and a theoretical framework. Several articles on TATT (e.g., Patelli and Pedrini 2015; Armenic et al. 2010) are used to get a better understanding of the topic, and the references included in those articles are useful for a further break-down of the concept of TATT.

### 2.1. Tone at the Top

TATT has been defined in various ways, and its measurement is not unequivocal (Patelli and Pedrini 2014). According to COSO (1992) TATT is seen as a relevant part of the control environment and is described as follows: "The tone set by top management is the most important factor contributing to the integrity of the financial reporting process. Notwithstanding an impressive set of written rules and procedures, if the tone set by management is lax, fraudulent financial reporting is more likely to occur." Vaassen et al. (2009 p.66) consider TATT as "one of the most abused and misunderstood concepts in

management control. It is about management giving the right example to their subordinates. By setting the proper TATT, management provides the most important contribution to shaping the organizational culture." According to Vaassen et al. (2009, p.66), TATT can be defined as "the consistency between managers' behaviour and their statements. The more consistency there is between managers' behaviour and their statements, the stronger the organizational culture." Since the COSO definition and that of Vaassen et al. (2009) largely overlap, they are used as a basis for this research.

#### 2.1.1. Corporate (Ethical) Culture

According to Schein and Schein (2017), culture is a complex mixture of values, control systems, missions, structures and symbols that fit together in order to define what is appropriate for a particular organization. According to Hunt et al. (1989) organizations may have many values, for example, values that guide product and service quality, selection of distribution channels and treatment of customers. According to Sweeney et al. (2010), perceived ethical culture is an encouragement by top management to make ethical decisions and avoid unethical behaviour. The distinction between 'ethical' and 'unethical' behaviour as used in Sweeney et al. (2010) is also used in this article.

#### 2.1.2. (Ethical) Leadership

According to Lawton and Páez (2014) "the ethical dimension of leadership has, increasingly, been of interest, motivated partly by the corporate scandals that have involved the unethical behavior of top executives in leading organizations throughout the world". One definition of ethical leadership often used is that of Brown et al. (2005, p.120). These authors define ethical leadership as "the demonstration of normatively appropriate conduct through personal actions and interrelationships, and the promotion of such conduct to followers through two-way communication, reinforcement, and decision-making". Unethical leadership, as opposed to ethical leadership, is destructive and harmful. Brown and Mitchell (2010, p. 588) introduce a variety of unethical leadership styles, such as abusive supervision, supervisor undermining, toxic leadership, and tyrannical leadership. Research shows these leaders are oppressive, abusive, manipulative, and calculatingly undermining (Tepper et al. 2007).

#### 2.1.3. Communication

Communication is an essential element for introducing the TATT (Swinkels 2003, p. 26). Communication of the right TATT can be effected by, amongst other, a code of ethics set by top management. Such a code aims to reduce ambiguity as well as increase consistent behaviour (Stevens 1999). Other available instruments for effecting TATT are compliance programs and leadership by example. In line with the first objective of this article, i.e. an attempt to measure TATT, the CEO letter is introduced as

a proxy for TATT. In the next section an explanation is provided for the use of this proxy.

## 2.2. CEO Letter

Companies provide a significant amount of information through their annual reports. Annual reports consist of two sections, financial statements and narrative sections (Balata and Breton 2005). Several studies evaluate the information content of the narrative disclosures, such as the Management Discussion and Analysis (MD&A), the officer's comment in earnings press releases and CEO letters (Kearney and Liu 2014). Thus, qualitative information from management narrative disclosure can act as a complement to financial information. There is empirical evidence (e.g., Segars and Kohut 2001) that the CEO letter to shareholders communicates important aspects of TATT, thereby exerting important social influence over stakeholders. It is noteworthy that many prominent CEOs have publicly acknowledged their strong personal role in drafting CEO letters to shareholders (Jones 2005).

Until now, research on TATT in CEO letters has mainly been done in a US context (Amernic et al. 2010; Craig and Brennan 2012; Dikolli et al. 2019; Patelli and Pedrini 2014). This research however does not quantify the TATT. This article uses the CEO letters of AEX-listed companies to quantify TATT and bridges the gap by performing research on CEO letters within a Dutch corporate environment. Quantification of TATT provides insight in both the TATT-score per individual company and the (relative) TATT-score in comparison with other companies. How TATT is quantified is described in section 3.2.

## 2.3. Potential explanatory variables of Tone at the Top

Sections 2.1 and 2.2 focus on the proxy variable of this article, i.e. the “(un)ethical TATT”. This variable is based on analyzing CEO letters. In addition to the construct of this proxy variable, a list of possible explanatory variables is presented, offering possible explanations for a certain level of TATT. These possible explanatory variables are based on a review of (academic) resources (e.g., Amernic et al. 2010; Craig and Amernic 2011; Nakashima and Ziebart 2016).

For example, one of the identified variables is Internal audit environment. As is stated by Hansen, Stephens, Wood (2009) “we identify six potential ways the Internal Audit Function may increase its ability to improve the tone at the top”. Also Nakashima and Ziebart (2016), state “The results indicate a positive link between TATT and [...] audit quality”. Therefore, it is assumed that there is a possible positive impact between a strong internal audit environment and TATT.

The outcome of this analysis is presented in Table 1.

However, in view of the explorative nature of this article, Table 1 can be regarded as an initial attempt to identify variables that may have impact on the proxy variable TATT. When discussing the out-of-range CEO letters (see section 4.4), this list of variables is used.

**Table 1.** Explanatory variables and respective impact on TATT.

| Explanatory variable                | Impact on proxy variable TATT |
|-------------------------------------|-------------------------------|
| Code of conduct                     | +                             |
| Compensation plans                  | -                             |
| Corporate Governance                | +                             |
| Difficult operating circumstances   | -                             |
| Internal audit environment          | +                             |
| Internal control environment        | +                             |
| Investments and disinvestments      | -                             |
| Risk taking culture                 | -                             |
| Supervisory Board                   | +                             |
| Compliance with law and regulations | +                             |

## 2.4. Theoretical framework

Based on the previous sections a theoretical framework is constructed in Figure 1.

TATT is considered to be the proxy variable in the study. TATT is operationalized by analyzing CEO letters with the use of text analysis. This quantitative analysis results in measuring and visualizing possible outliers of “(un)ethical TATT” (see section 4).

In this framework, the term TATT is introduced twice. In the upper box, the representation of TATT is of a qualitative nature; TATT represented in the lower box is the quantitative representation after analyzing CEO letters, i.e., the score, measured by the textual-analysis program.

The applicable out-of-range CEO letters, i.e. a score more than 2 standard deviations from the mean resulting from text analysis, are further analyzed by close reading, taking into account the scores from text analysis as well as the identification of possible explanatory variables. The combination of both the analytical power of text analysis and close reading is in line with previous research, such as Craig and Amernic (2016), Murphy (2013) and Amernic et al. (2010). Close reading complements text analysis, because that is where “the nuances of a message are to be found” (Murphy 2013, p. 57).

## 3. Research Design

### 3.1. Sample selection

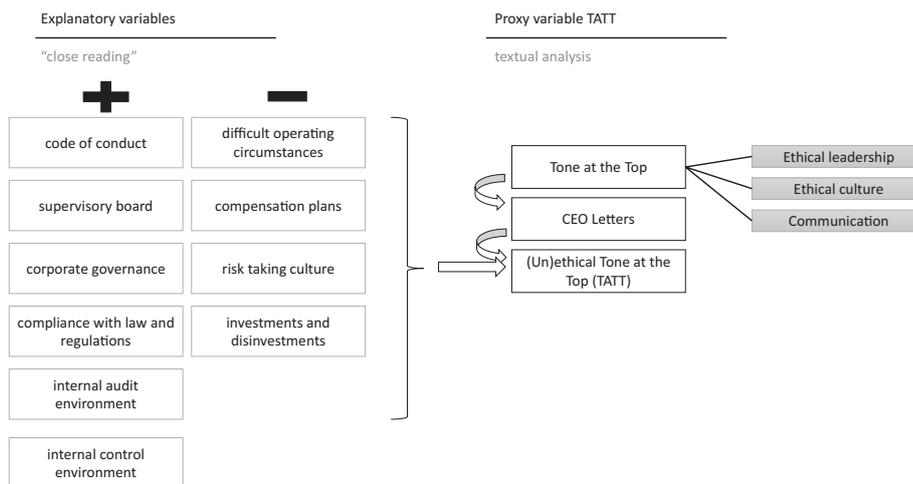
The sample selection consists of companies listed at the AEX index from 2007 till 2016. The AEX index is composed of 25 of the most frequently traded securities on Euronext Amsterdam. Table 2 contains the data set.

**Table 2.** Sample selection.

|   |               |
|---|---------------|
| <b>Population, based on total number of AEX companies</b> | <b>251*</b>   |
| <b>Minus unavailable annual reports</b>                   | <b>-/- 10</b> |
| <b>Minus unavailable CEO letters</b>                      | <b>-/- 23</b> |
| <b>N in analysis</b>                                      | <b>218</b>    |
| <b>% available</b>  | <b>87%</b>    |

\* In 2013, 26 companies were part of the AEX index.

Figure 1. Theoretical framework.



3.2. Textual-analysis: DICTION

For the analysis of CEO letters, as an indicator for TATT, a text analysis program named DICTION is used. DICTION has a dictionary-based approach and uses a built-in database consisting of 50,000 previously analysed texts (DICTION manual). DICTION uses 31 standard dictionaries (word lists) to search a given text. DICTION processes the text, looking for an exact match of the words contained in the 31 standard dictionaries (Diction manual). The 31 dictionary measures have labels such as ‘numerical terms’, ‘ambivalence’, ‘self-reference’, and ‘tenacity’. In addition, based on the text processing described above, DICTION produces measures of 4 calculated variables (‘insistence’, ‘embellishment’, ‘variety’ and ‘complexity’) by linguistically based methods of calculation.

The above-mentioned DICTION-related 31 dictionary measures, as well as the 4 calculated variables (35 in total) are used to calculate the 5 master variables of DICTION (certainty, activity, optimism, realism and commonality).

The definitions of these 5 master variables (DICTION manual) are mentioned below:

- Certainty – Language indicating resoluteness, inflexibility, completeness and a tendency to speak ex cathedra;
- Activity – Language featuring movement, change, the implementation of ideas and the avoidance of inertia;
- Optimism – Language endorsing some person, group, concept or event, or highlighting their positive entailments;
- Realism – Language describing tangible, immediate, recognizable matters that affect people’s everyday lives;
- Commonality – Language highlighting the agreed-upon values of a group and rejecting idiosyncratic modes of engagement.

These 5 master variables are used as building blocks for quantifying TATT.

3.3. Data analysis

After importing the CEO letters into DICTION, the program calculates the master variables, derived from the 35 underlying variables. To be able to operationalize the concept of TATT, an all-inclusive TATT score is calculated. The construct of the TATT score is based on DICTION’S 5 master variables. Some variables have a positive relationship with TATT, whilst others have a negative connotation. The formula for the TATT score is:

$$(2 \times \text{Realism} + 2 \times \text{Commonality} - 1 \times \text{Activity} - 1 \times \text{Optimism} - 2 \times \text{Certainty}) \div 8$$

Both the use of a positive/negative connotation as well as the use of different weighting factors, per master variable, are based on Patelli and Pedrini’s research (2014, p. 14, Table 6). In their research, they found evidence that three out of the five thematic indicators were statistically associated with financial reporting aggressiveness, an artefact of a negative TATT. Therefore, in this research, the thematic indicators of realism, commonality and certainty are multiplied by 2. Remaining variables have a weighting factor of 1.<sup>4</sup>

To determine outliers in TATT scores in this analysis, a lower and upper bound range are constructed by subtracting and adding 2 standard deviations from the mean value per master variable. The choice for applying 2 standard deviations is in line with research of Amernic et al. (2010, p. 109 and p. 131). In their research, also based on the exploration of CEO letters in combination with DICTION, the authors applied 2 standard deviations from the mean for every DICTION variable, in order to define out-of-range CEO letters. By using the 2 standard deviations from the mean value, a 95% interval is implied.

Subsequently, the out-of-range CEO letters in this research are studied in a qualitative manner by means of close reading. Close reading is one of the available qualitative methods for assessing the TATT of a company. This is in line with the research design of Amernic et al. (2010), in which close reading as a qualitative method is

used. As presented in the theoretical framework (section 2.4), ‘close reading’ takes place based on pre-determined explanatory variables (section 2.3). It is important to mention that this research aims to explore the presence of possible explanatory variables (as included in the theoretical framework) in the CEO letters, not to validate them, since this would require additional data from other sources than CEO letters and additional statistical analysis thereon.

### 4. Analysis and results

This section describes the analysis and results of this research. Section 4.1 contains descriptive statistics. These statistics are analyzed to determine the TATT outliers which are presented in Section 4.3. A qualitative review takes place in section 4.4 to validate the master variables on a manual basis and to explore the presence of possible explanatory variables for out-of-range TATT-scores.

#### 4.1. Descriptive statistics

The full data set contains 218 individual observations. The time span is 10 years (2007–2016). In this period 38 companies were part of the AEX index and under examination for this article. Some companies are only present for one year, while others are represented in the AEX index for the full 10 year period. As discussed in section 3.2, 35 variables are used to calculate the 5 master variables. Please see Table 3 for a break-down of the 5 master variables for the full data set.

Applying descriptive statistics (e.g., standard deviation) to the data set implies a normal distribution of the underlying data points. In order to interpret Table 3, the concept of a normal distribution is relevant. In order to test whether a normal distribution is applicable to the data set, the Shapiro-Wilk test is conducted in Stata. The resulting p-value is higher than 5%, indicating that the null hypothesis of normality is not rejected.

In line with other research (e.g., Amernic et al. 2010), an out-of-range CEO letter is based on a deviation from the mean of at least 2 times the standard

deviation on a two-tail basis. For example, a score for a positive-related master variable on the left side of this threshold implies a less than average positive impact on the TATT score. A score for a positive-related master variable on the right side of this threshold implies a more than average positive impact on the TATT score.

As introduced in section 3.2 the TATT score is constructed based on the five master variables.

Subsequently, the TATT for the full data set is calculated. Table 4 shows the results.

**Table 4.** TATT scores based on full data set (N = 218).

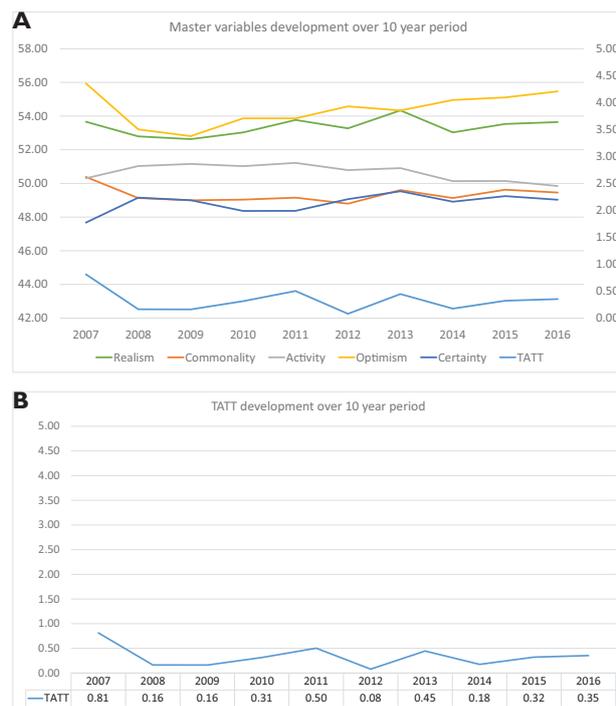
| Item                  | TATT   |
|-----------------------|--------|
| Median                | 0.328  |
| Modus                 | 0.675  |
| AVERAGE               | 0.333  |
| ST.DV                 | 1.143  |
| 2x st.dv              | 2.286  |
| OUTLIER (- 2x st. dv) | -1.953 |
| OUTLIER (+2x st.dv)   | 2.619  |

#### 4.2. General TATT development over time

Figure 2A shows the development of the average TATT, calculated per year for AEX companies, over a 10 year period. In addition, also the average scores for each master variable per year are presented.

In addition, Figure 2B shows a relatively stable, positive average TATT score. No average TATT score for a single year during this 10 year period deviates substantially from other years.

**Figure 2.** TATT development over time.



**Table 3.** Descriptive statistics full data set (N = 218).

|                         | Certainty<br>(-/-) | Activity<br>(-/-) | Optimism<br>(-/-) | Realism<br>(+) | Commonality<br>(+) |
|-------------------------|--------------------|-------------------|-------------------|----------------|--------------------|
| Median                  | 49.420             | 50.505            | 54.360            | 53.615         | 49.330             |
| Modus                   | 50.470             | 50.080            | 55.630            | 52.330         | 49.590             |
| Average                 | 48.836             | 50.654            | 54.423            | 53.382         | 49.326             |
| Maximum                 | 54.720             | 58.230            | 62.590            | 60.260         | 56.830             |
| Minimum                 | 37.510             | 46.110            | 47.020            | 44.420         | 44.550             |
| ST.DV                   | 2.708              | 2.152             | 2.853             | 2.669          | 1.933              |
| 2x st.dv                | 5.417              | 4.303             | 5.705             | 5.337          | 3.867              |
| OUTLIER<br>(-2x st. dv) | 43.420             | 46.350            | 48.717            | 48.045         | 45.459             |
| OUTLIER<br>(+2x st.dv)  | 54.253             | 54.957            | 60.128            | 58.719         | 53.192             |

### 4.3. Determining out-of-range CEO letters

In order to answer the CRQ, the total data set (N = 218) is used to identify the outliers c.q. the out-of-range CEO letters. Table 5 shows the outliers. This table shows 11 out-of-range CEO letters. This is 5% of the total data set (N = 218). In line with the research design in section 3, this quantitative analysis is complemented by a qualitative review (close reading) of these 11 CEO letters.

**Table 5.** Outliers.

| #  | Company              | Significantly rated above average TATT vs Significantly rated below average TATT |
|----|----------------------|--|
| 1  | ASML 2007            | Significantly rated above average TATT   |
| 2  | BAM 2009             | Significantly rated below average TATT   |
| 3  | Unilever 2009        | Significantly rated below average TATT   |
| 4  | Wolters Kluwer 2009  | Significantly rated below average TATT   |
| 5  | Unibail Rodamco 2010 | Significantly rated below average TATT   |
| 6  | Unibail Rodamco 2011 | Significantly rated below average TATT   |
| 7  | Philips 2012         | Significantly rated below average TATT   |
| 8  | OCI 2014             | Significantly rated below average TATT   |
| 9  | TNT 2014             | Significantly rated below average TATT   |
| 10 | RELX 2007            | Significantly rated below average TATT   |
| 11 | Arcelor Mittal 2010  | Significantly rated above average TATT   |

Two important remarks have to be made about this table:

1. The above-mentioned table needs additional explanation. For example, the out-of-range TATT-score of the CEO letter TNT 2014 can be partly explained by the out-of-range score on one of the master variables, i.e. "Certainty". A number of selected sentences in this CEO letter can be regarded as an indication of a high score on this master variable, i.e. "Certainty". For each out-of-range TATT-score in Table 5, this qualitative analysis has been executed.
2. In this table, the outcome "Significantly rated above average TATT" indicates a TATT-score more than two standard deviations above the average TATT-score; consequently the outcome "Significantly rated below average TATT" indicates a TATT-score more than two standard deviations below the average TATT-score.

### 4.4. Qualitative analysis of out-of-range CEO letters

In the aforementioned section, 11 outliers are determined. These letters qualify for the next step of analysis: close reading. Exceptional sentences in each out-of-range CEO letter, indicating an out-of-range score on one or more master variables, are determined. The explanatory variables checklist is used to read and analyse each letter and an initial attempt is made to link one or more potential explanatory variables (section 2.3.) to each CEO letter.

The following steps for each out-of-range CEO letter are executed:

1. Determining exceptional sentences, based on close reading;

2. Comparing close reading findings with DICTION scores; and
3. Identifying relevant explanatory variables.

### 4.5. Overview of identified explanatory variables

In the close reading exercise of section 4.4, one or more explanatory variables per out-of-range CEO-letter are identified. Table 6 shows the identified explanatory variables including the frequency of each explanatory variable, as identified in the 11 out-of-range CEO letters.

**Table 6.** Frequency of identified explanatory variables, based on close reading.

| #  | Explanatory variables                   | Frequency total | Frequency ethical | Frequency unethical |
|----|---|-----------------|-------------------|---------------------|
| 1  | Difficult operating circumstances (-)   | 8               | 1                 | 7                   |
| 2  | Investments and disinvestments (-)      | 4               | 0                 | 4                   |
| 3  | Supervisory Board (+)                   | 3               | 1                 | 2                   |
| 4  | Corporate Governance (+)                | 1               | 0                 | 1                   |
| 5  | Compliance with law and regulations (+) | 1               | 0                 | 1                   |
| 6  | Internal control environment (+)        | 0               | 0                 | 0                   |
| 7  | Internal audit environment (+)          | 0               | 0                 | 0                   |
| 8  | Risk taking culture (-)                 | 0               | 0                 | 0                   |
| 9  | Code of Conduct (+)                     | 0               | 0                 | 0                   |
| 10 | Compensation plans (-)                  | 0               | 0                 | 0                   |

The use of the colour red indicates that the finding does not correspond with what is presented in Table 1.

The following findings can be derived from Table 6.

1. In eight CEO letters, the explanatory variable 'difficult operating circumstances' was identified. Based on the theoretical framework, this could have a negative impact on TATT. Seven out of eight findings correspond with the theoretical framework.
2. In four CEO letters, the explanatory variable 'investments and disinvestments' was identified. Based on the theoretical framework, this could have a negative impact on TATT. All findings correspond with the theoretical framework.
3. The explanatory variable 'Supervisory Board' is mentioned in three CEO letters. In the theoretical framework, a possible positive impact was defined between a change in the composition of the Supervisory Board and TATT. However, this possible positive impact only holds for one of the three CEO letters, as shown in Table 6.
4. The explanatory variables "Corporate governance" and "Compliance with law and regulations" are mentioned

once in two separate CEO letters. The possible positive impact of both variables on TATT, based on the theoretical framework, does not appear in our analysis.

- Five explanatory variables are not mentioned in any of the CEO letters under examination. This could be due to the fact that a CEO letter is a non-regulated document. Therefore, their impact on TATT does not appear in our analysis.

## 5. Conclusion, limitations and future research

### 5.1. Conclusion

The CRQ of this study is:

*‘To what extent is it possible to quantify Tone at the Top at AEX-listed companies from 2007 to 2016 and consequently, what findings and trends can be derived from the results?’*

Based on the research conducted, the answer to the research question is twofold:

- Quantification of TATT is possible by using CEO letters as a proxy. These CEO letters are analyzed in DICTION, resulting in 5 master variables. Based on a literature review, e.g., Patelli and Pedrini (2015); Schrand and Zechman (2012) and Hooghiemstra (2000) – these master variables are used to construct (relative) “ethical” or “unethical TATT”.
- The main finding is that the average TATT is relatively stable for AEX companies over time. However, on closer examination, relevant deviations from the mean TATT are identified for a number of AEX-listed companies. The resulting 11 outliers are further analyzed with close reading. This analysis generates a first step to determine explanatory variables which are associated with TATT: difficult operating circumstances, investments and disinvestments, changes in composition of Supervisory Boards, corporate governance and compliance with law and regulations. This is a first step towards validating our theoretical framework.

### 5.2. Limitations

This article contributes to academic research and also has a few relevant practical implications. However, the research also comes with some caveats, grouped in 4 categories:

#### 5.2.1. CEO Letters

CEO letters are used as a representation of TATT, in line with prior research as shown in section 2. The question remains whether these documents fully reflect the TATT. A CEO letter is a rather rough proxy, because measuring

TATT is more subtle and nuanced. Usually, CEO letters are drafted not only by the CEO, but by several officers (e.g., investor relations and disclosure committees). The final version of the previous year could be a starting point for the new CEO letter as well (‘copy paste exercise’). So to what extent is the CEO letter a true representation of the CEO’s mind set? Analysis of CEO letters could therefore be supplemented by analysis of conference calls (e.g., Q&A after Analyst Presentation) or meetings without a pre-defined transcript, e.g. unstructured and/or unscheduled meetings (Craig and Amernic 2011, 2016).

#### 5.2.2. DICTION

This quantification tool is limited to a predefined set of thematic indicators. This can be perceived as either a strength or a weakness. The strength is objectivity and reliability of the measure, given the extensive use of the program in prior discourse analysis. However, inflexibility can be considered a weakness. Also, DICTION may not capture the context in which a word appears in full.

#### 5.2.3. Operationalization of Tone at the Top

Constructing TATT using DICTION has not been executed so far according to the authors’ knowledge. Thus, the approach to employ DICTION to assess TATT is experimental. The construct of the TATT score (see 3.3) in this article is consistent with the assumptions used in Patelli and Pedrini’s research (2014, p. 14, Table 6), which is applied exclusively on firms from the US. In line with this, this research is using underlying positive/negative connotation per master variable as well as different weighting factors per master variable. More research is recommended to determine if adjustments are necessary.

#### 5.2.4. Identification of explanatory variables

The results of this research may also be influenced by the occurrence of endogeneity, i.e., the possible impact of one of the explanatory variables on TATT may also be influenced by the existence of other unknown explanatory variables.

### 5.3. Future research

Based on the outcome of this study several areas for future research can be considered.

- Although the average TATT of the AEX-listed companies has been stable over the 10 year period, a valid question is whether a certain level of TATT of a specific AEX company has predictive value for future (non)performance of this specific AEX company. In their research Amernic et al. (2010, p. 58) have posed the question whether DICTION outcomes can be used as a potential diagnostic tool, for example for auditors. Auditors could then analyze CEO texts us-

ing DICTION and be watchful for any out-of-range observations. In practice, companies with an out-of-range CEO letter should receive additional attention. In this context, Amernic et al. (2010, pp. 60–61) introduced a new master variable 'hubris', constructed by DICTION variables (tenacity, praise and accomplishment). Calculation of this master variable 'hubris' is executed for the sample in this article (N=218). Only two CEO letters are detected with an out-of-range hubris score in this sample, of which one letter is also detected as an out-of-range TATT score.

- This research focuses on a Dutch context for a 10 year period. This study could be replicated for other countries and with different time spans to better understand the generalizability of the (Dutch) findings. Moreover, this study could be replicated after 10 years as well to determine whether the findings are robust over time.
- TATT is operationalized using CEO letters. Further research could improve our understanding of the relation between TATT and CEO letters. Alternative (written) documents might be valid additions to this analysis.

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## Notes

1. <https://fd.nl/economie-politiek/1176672/brussel-houdt-vast-aan-strengere-regulering-van-bankensector>
2. The Dutch Corporate Governance Code. Zie <http://www.mccg.nl>
3. <https://www.pwc.nl/nl/marktsectoren/banken/basel-iv.html>
4. A sensitivity analysis has been conducted to check the robustness of the TATT outliers. Based on the current proxy, 11 out of 218 CEO letters are classified as outliers. Using the alternative proxy (i.e. all master variables are equally weighted), 8 out of these 11 cases are also classified as outliers.

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