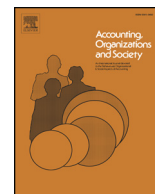




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Contents lists available at ScienceDirect

Accounting, Organizations and Society

journal homepage: www.elsevier.com/locate/aosLinguistic tone and the small trader: Measurement issues, regulatory implications, and directions for future research[☆]

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ARTICLE INFO

Keywords:

Textual analysis
Residual tone
Small investors
Managerial forecast announcements

ABSTRACT

Baginski, Demers, Kausar, and Yu (2018) demonstrate that small, retail investors often misinterpret the linguistic tone contained in managerial forecast announcements during the 1997–2006 time period. This is in contrast to the trading behavior of large, institutional investors. My commentary offers some concerns/suggestions about the measurement of linguistic tone, the separation of small and large traders' activities, the implications of this type of research for regulatory actions, and includes possible additional research suggested by their paper.

1. Introduction

Do small, retail investors have the same level of sophistication in understanding the content of business disclosures as large, institutional traders in financial markets? The experimental accounting literature has documented that unsophisticated investors can misinterpret financial documents (see [Tan, Wang, and Zhou \(2014\)](#)). That is, small, retail investors do not always properly gauge the tone of documents prepared by company managers. If retail investors are ill-prepared to comprehend financial disclosures, should the Securities and Exchange Commission (SEC) step in and attempt to level the playing field for unsophisticated traders?

Using 4,046 managerial forecast announcements, [Baginski, Demers, Kausar, and Yu \(hereafter BDKY, in press\)](#) examine how different types of investors (sophisticated versus unsophisticated) react to the linguistic tone of an important financial disclosure containing forward looking language. They find that small, less sophisticated traders are significantly more likely to be vulnerable to language misprocessing than institutional traders. Unlike the annual report setting, the authors focus on a document which could be quickly digested by all types of investors. Annual reports (i.e., Form 10-Ks) contain, on average, 31,034 words while managerial forecast announcements typically have only 690 words.¹ Thus, their setting is realistic in the ability of small, retail investors to quickly analyze the disclosure and potentially trade based on the information contained in it.

Unfortunately, the author's time period is a bit dated, only 1997–2006. The reasonable justification for stopping their analysis more than a decade ago is the inability of researchers to confidently categorize trades between small and large investors as institutional traders began

to split up their trades following Nasdaq's 1997 Order Handling Rules and the quoting of stock prices in increments of a penny (i.e., decimalization) on U.S. stock exchanges (see [Barclay, Christie, Harris, Kandel, and Schultz \(1999\)](#); [Hvidkjaer \(2008\)](#)).

Researchers have struggled to accurately measure the linguistic tone of a financial document. While some advocate ignoring positive words, thereby focusing on only negative language (see [Engelberg \(2008\)](#); [Loughran and McDonald \(2011, 2016\)](#)), BDKY follow [Huang, Teoh, and Zhang \(2014\)](#) and use a net tone measure (% positive words minus % negative words) to tabulate the “residual tone” of the managerial forecast announcement.

Calculating residual tone has several important advantages. The measure controls for management's earnings forecast, actual earnings surprise, three-day announcement returns, and other firm-specific characteristics known at the time of the announcement. Thus, given all information available to investors, is the language of the managerial forecast more or less positive than should be expected? The disadvantage with the residual tone approach is that any omitted variables in the estimation of tone will go into the residual component.

Consistent with the authors' use of the residual tone variable, they find that higher levels of residual tone is positively and significantly related to abnormal trading during the managerial forecast announcement event period (days -1 to +1). This is strong evidence that there is some disagreement between investors on the interpretation of the managerial forecast announcement. The paper also reports that the signed level of residual tone is positively linked with abnormal trading. This is consistent with the premise that higher usage of optimistic language by managers is associated with larger levels of disagreement by investors.

[☆] I thank Robert Battalio, Robert Libby, Bill McDonald, and Patrick Witz for helpful comments.

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¹ For a large sample of annual reports during 1994–2004, [Li \(2008\)](#) reports the mean and median number of words as 31,034 and 23,122, respectively.

<https://doi.org/10.1016/j.aos.2018.03.001>

Received 23 February 2018; Accepted 6 March 2018

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The paper's main finding is that small and large investors differ in their trading behavior reaction to the forecast announcement. Large, sophisticated trader buying is negatively associated with the announcement residual linguistic tone, while unsophisticated investor buying is positively linked with residual tone. Since post-announcement returns are negatively related to residual linguistic tone, there is a wealth transfer from small, retail traders to large, sophisticated institutional players. BDKY suggest that the SEC might consider taking a hard look at language used in managerial forecast announcements that appear to be misinterpreted by small, retail investors, leading this group of investors to inadvertently transfer money to large, sophisticated traders.

2. Concerns/suggestions

2.1. Impact of declining quoted depth and the decimalization of prices on trade sizes

Since the premise of the paper is built on the trading behavior of small investors, it is critically important to ensure that only the actual trades by retail investors are identified as being from small, retail investors. Clearly, researchers do not want the trading behavior of large institutions to be misclassified as being that of small, retail investors. Following the methodology used in previously published papers, BDKY define a trade as being by small investors if the transaction in the three-day earnings announcement window has a dollar value (shares traded multiplied by price) of less than \$5,000. In contrast, trades with a dollar value of more than or equal to \$50,000 are categorized as being from large, sophisticated traders. The authors terminate the sample in December of 2006 because institutional traders increasingly began to cut up their orders into smaller trade sizes due to declining quoted depths and the pricing of securities in increments of a penny. That is, instead of buying 3,000 shares at an offered ask price of \$20, institutional traders would break-up the trade into 30 different transactions of 100 shares each.

The calendar date when large traders started to split up their trades, thereby mimicking the behavior of small traders, is the subject of some debate in the literature. Importantly, not all researchers select calendar year 2006 as the last cutoff year for proper trade classification of small traders. For example, Battalio and Mendenhall (2005) only examine trades on Nasdaq because of the exchange's Small Order Execution System which allowed them to confidently classify trades of less than 500 shares as being initiated by small investors. Battalio and Mendenhall report that, on average, 4.3% of all trades in the three-day earnings announcement window are from small investors during their 1993–1996 time period.

Battalio and Mendenhall (2005) stop their analysis of small trader behavior in December of 1996 because of Nasdaq's 1997 Order Handling Rules. Barclay et al. (1999) report that the SEC allowed Nasdaq market makers, beginning on January 20, 1997 for selected stocks, to lower the minimum size of quotes from either 1,000 or 500 shares to only 100 shares. The authors document, in their Panel B of Table IV, that for the sample of selected Nasdaq stocks, 13.6% of the time the inside quoted depth was only 100 shares following the January 1997 Order Handling Rule. Whenever the quoted inside depth is only 100 shares, all Nasdaq trades on firms with a stock price of less than \$50 would be classified as being from small traders, regardless of who the actual investor was.

The other market microstructure effect which causes difficulty in the proper categorization of trades is the decimalization of prices. Both the New York and American stock exchanges finalized the decimalization of prices (i.e., pricing issues in increments of a single penny) on their venues by January of 2001, while Nasdaq moved to decimal pricing a few months later in April 2001. As institutions started to split up their trades into smaller packages in response to reduced depth at the inside quotes, their trading pattern, at times, took on the appearance of

retail investors (Chakravarty, Panchapagesan, and Wood (2005)). Hvidkjaer (2008), like Battalio and Mendenhall (2005), focuses on the trading pattern of small investors. He eliminates the time period after decimalization (January 2001) from his main analysis to ensure proper identification of small, retail individuals.

BDKY's Table 4 presents evidence consistent with seepage of institutional trader behavior into the small, retail investor trading bin. The percentage of trades categorized as being from small traders increases from 6.09% in 1997 to 12.11% by the end of the sample period in 2006. Thus, the fraction of trades by retail investors during the three-day window around the announcement date increased by almost 100% over the ten-year period. The authors, in untabulated results, report that their coefficient estimates of interest do not change significantly if the sample ends in 2002 or 2005. On the positive side, misclassifying institutional trades as being small traders in the later years of their sample would bias against the paper's main finding. However, given the major structural changes in trading behavior occurring in their time period, having the sample end in December 2006 clearly misidentifies a sizable fraction of large, institutional trading as being from small, retail investors in the later years of analysis.

2.2. Use of positive words to measure linguistic tone following the managerial forecast announcement

To measure tone, BDKY calculate the % of positive words in the managerial forecast minus the % of negative words in the document. At first pass, this may seem to be a reasonable measure of linguistic tone. For example, there is some evidence in the literature that suggests positive tone or the use of extreme words in positive news environments can influence investors (see Hales, Kuang, and Venkataraman (2011); Tan et al. 2014; and Bochkay, Chava, and Hales (2017)).

However, a number of papers have argued that investors tend to ignore positive fluff in news articles or documents written by managers and instead mostly focus on negative language (see Tetlock (2007) and Loughran and McDonald (2011, 2016)). Positive language coming from company insiders tends to be discounted by all types of investors. Also, if the management team is using negative language to describe future operations, investors are much more likely to take notice. It is important to note that in financial disclosures, negative situations can be frequently masked with innocuous positive language. As an extension of the paper, I would suggest using only % negative as the starting point in the tabulation of residual tone. If investors often discount positive language by managers, it probably should not be included in the calculation of residual tone.

2.3. Role of the SEC

In the paper, BDKY suggest that the SEC might wish to get involved in the language of managerial forecast announcements because small, retail investors have a tendency to overreact to positive tone in the document. Clearly, the SEC is concerned about protecting investors from abuses at the hands of managers. However, just because one set of investors misinterpret language contained in a financial disclosure, this does not warrant onerous rules and regulations from the SEC concerning word usage. Since small investors tend to overreact to positive language in the forecast announcement, should the SEC mandate only pessimistic tone be contained in the disclosure? Likewise, if small investors tend to misinterpret language in annual reports (i.e., Form 10-K), should these disclosures be curtailed too? The BDKY paper is about sophisticated versus non-sophisticated investors. Their evidence is consistent with sophisticated, large traders being better at correctly interpreting disclosures concerning future profitability. This is the expected outcome.

As shown by Rennkamp (2012), when financial disclosures are more readable, small investors tend to be more confident in their interpretation of the text. That is, better written documents generate

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