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# Discussion of Large-Sample Evidence on Firms' Year-over-Year MD&A Modifications

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## 1. Introduction

Brown and Tucker [2011] (BT) document year-to-year changes in firms' Management Discussion and Analysis (MD&A), determinants of these changes (including temporal variation), and how these changes affect the market response to 10-K filings. By changes in MD&A, BT refer to a quantitative measure of the similarity of word usage in two MD&As. BT view changes in the MD&A made in response to economic changes at the firm as a measure of disclosure. While managers are required to provide an MD&A, they have ". . . flexibility in choosing the breadth and depth of what is discussed." Thus, the authors view MD&A modifications as a measure of voluntary, as well as mandatory, disclosure.

BT use an algorithm based on word counts to quantify similarities across documents. Applying this algorithm to consecutive MD&A documents allows them to measure how managers modify the MD&A on a year-to-year basis. Using a sample of 28,142 firm-years, BT use their MD&A modification variable (*Score*) to answer three questions. First, do managers modify the MD&A in response to changes in firm fundamentals and performance? Second, does the *Score* variable affect the reaction by investors and analysts

*Fisher College of Business, the Ohio State University. This discussion incorporates comments made by participants at the 2010 *Journal of Accounting Research* conference. I thank Steven Crawford, Michael Drake, Ken Merkley, and Douglas Skinner (the editor), for helpful comments on this discussion. All errors are my own.

to 10-K disclosures? Third, are MD&A modifications and market reactions to 10-K disclosures changing over time?

BT document that MD&A modifications are larger when firms undergo economic events, such as changes in operating results, changes in liquidity and capital resources (e.g., liquidity measures, debt, and cash flows), and acquisitions and disposals of assets. Further, MD&A modifications are larger at large firms in less-concentrated, high-litigation, industries. Interestingly, MD&A modifications are smaller at firms with high analyst following and high institutional ownership.

Having established that MD&A modifications appear to reflect economic changes, BT demonstrate that investors (but not analysts) react more strongly to the release of a 10-K when modifications are large, suggesting that modifications represent increases in information disclosure. Finally, BT show that MD&A modifications are getting smaller over time and that market reactions to modifications are also decreasing; they suggest this is consistent with MD&A's usefulness to investors decreasing over time perhaps due to the rise of other information sources, such as conference calls, webcasts, press releases, forecasts, and investor conferences.

This paper joins a line of recent research using computer-intensive methods to evaluate and quantitatively assess the information in financial reports and disclosures. While analyzing the lexical properties of financial disclosures has a long history (see Jones and Shoemaker [1994]), the availability of computerized analysis has resulted in a substantial increase in sample sizes and the ability to narrowly define lexical properties (Li [2008]). Prior research in this area has primarily focused on identifying the content of disclosures (thematic analysis) or quantifying the readability of disclosures (syntactic analysis). Taking a different approach, BT focus on *changes* in words or phrases used in disclosures.[1] While examining changes makes it difficult to identify exactly what events management is discussing (a drawback that prompts additional hand-coded analyses in section 7), BT motivate their approach as a way to assess how well firms have responded to SEC instructions to reduce "boilerplate" material. BT's overall conclusions are that while managers are meeting a "baseline level of disclosure," their MD&A disclosures are increasingly laden with boilerplate as evidenced by longer MD&As *and* smaller modifications of those MD&As over the 1998–2006 time period. In addition, the market reactions to 10-Ks are decreasing over this same time period, consistent with MD&As becoming less useful over time.

BT's modification measure is an intriguing addition to the various text analysis measures used in analysis of financial reports and disclosures and provides unique evidence on the usefulness of MD&A disclosures. As a new measure, I will devote much of the space in this discussion to suggestions for future research using this measure. Throughout the discussion, I will attempt to convey comments and suggestions made by participants at the

[1]Nelson and Pritchard [2007] also focus on changes in content, developing a "resemblance" score for MD&A cautionary language.

conference presentation. Section 2 of this discussion addresses the general setting of BT (MD&A) and what prior theoretical and empirical papers predict regarding disclosure in the MD&A. Section 3 discusses the *Score* variable, which measures how the MD&A is modified. Section 4 address the relation between analyst revisions and *Score*, while section 5 addresses future research questions related to *Score*. Section 6 concludes.

## 2. *MD&A and the Disclosure Literature*

### 2.1 WHY LOOK AT MD&A?

A common question from conference participants was why researchers should focus on MD&A given the lack of timeliness of 10-K filings and the redundant nature of much of the MD&A content. I believe this question highlights one of the strengths of the paper, namely, that it provides a measure of the potential "newness" of information conveyed in the MD&A. If MD&A modifications are minimal or are unrelated to economic changes at the firm, we can reasonably conclude that the MD&A consists largely of boilerplate material that does not reflect the timely economics of the firm. By showing that *Score* (the MD&A modification measure) is related to economic changes, we are reassured that managers are changing their disclosure as circumstances change. Further, by carefully breaking down the types of economic changes that managers may discuss (e.g., operating results vs. liquidity factors), BT are able to compare the MD&A with other disclosure avenues (such as earnings releases) that may offer more timely disclosure (see, e.g., BT's discussion of MD&A vs. earnings releases in section 5.2 of the paper).

The relevance of the MD&A is revisited in BT's final set of tests, which look at temporal changes in the market reaction to the release of the 10-K. BT document that in the latter part of their sample period (ending in 2006), MD&A modifications and the price reaction to 10-Ks are decreasing. This is consistent with the increase in information sources such as conference calls and investor conferences.

### 2.2 WHAT DOES THE THEORY LITERATURE PREDICT?

As would be expected in a paper introducing a new disclosure measure, the empirical tests are very descriptive and there is little discussion of the theoretical literature on disclosure. "Standard" disclosure theory holds that nondisclosure "unravels" because nondisclosure is interpreted as bad news. Managers with good news disclose to avoid being pooled with bad news managers and this unraveling leads to full disclosure (except, perhaps, for the worst firms). However, introducing proprietary costs (Verrecchia [1983]) and the possibility of managers with nothing to disclose (Dye [1985], Jung and Kwon [1988]), results in nondisclosure equilibria. Thus, theoretical predictions regarding MD&A modification would presumably vary depending on (1) the costs of including more or less information in the MD&A and (2) the likelihood that managers had new information to disclose relative to the prior year. Intuitively, many of the

independent variables included in equation (1) as determinants of MD&A modifications can be motivated based on proprietary cost and new information grounds. For example, industry concentration is included as a measure of competitive pressure to avoid disclosing items that would help competitors. Similarly, large changes in operating results suggest managers do have information to disclose to investors.

The question that arises from consideration of the theory literature is whether there are other variables, currently omitted from equation (1), that proxy for the costs and benefits of MD&A modifications. For example, one cost of disclosure is the expectation that disclosure will continue in the future. If a firm makes a disclosure and the circumstances underlying that disclosure change, the firm has a "duty to update," and may be sued if it does not provide additional disclosure (Cox et al. [2001]). Such a duty may inhibit the initial disclosure. While BT control for high-litigation-risk industries, Rogers and Van Buskirk [2009] find that firms react to actual lawsuits by reducing disclosure, presumably to reduce the "duty to update" danger. This suggests that controlling for past lawsuits may be an additional source of variation in the extent of MD&A modification.

### 2.3 WHAT DOES THE PRIOR EMPIRICAL LITERATURE PREDICT?

The empirical literature on disclosure is another source of predictions for this paper.[2] Driven by the intuitive prediction that disclosure is more likely when managers have good news, prior research has examined the relation between performance and disclosure. Miller [2002] and Merkley [2010] are two papers in this area: both of them examine how disclosure reacts to changes in accounting performance. Miller [2002] finds that firms experiencing increases in performance (consecutive quarterly earnings increases) increase their disclosure (e.g., earnings forecasts, preannouncements, etc.). As performance returns to previous levels, disclosure also decreases. Miller [2002] argues this is consistent with good earnings performance representing "good news" that managers will want to disclose for valuation purposes. Further, good earnings performance reduces the possibility of being sued and, thus, reduces any incentives to reduce disclosure for litigation-related reasons.

Merkley [2010] is a recent working paper that also examines the relation between performance and disclosure, specifically, the relation between changes in earnings and qualitative disclosure of R&D activities. The main finding of Merkley [2010] is that as performance *decreases*, qualitative disclosure of R&D *increases*. Merkley [2010] argues this is consistent with management reacting to current bad economic performance by increasing the discussion of activities with potentially positive effects on future performance.

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[2]See Healy and Palepu [2001], Core [2001], and Beyer et al. [2010] for reviews and discussions of this literature.

Together, Miller [2002] and Merkley [2010] suggest that changes in economic performance are associated with changes in disclosure; however, the relations vary depending on the type of disclosure: quantitative disclosures of future performance increase with good performance while qualitative disclosures of activities with potential future value increase with bad performance. Could something similar happen with measures of management's discussion of current performance? In particular, should managers modify MD&A differently depending on whether their operating results (or their liquidity position) have changed for the worse or for the better? Given that the MD&A is designed to allow management to provide "... *their* perspectives of the firm to investors, such as why earnings have changed ..." (BT, first paragraph, emphasis in original), Miller [2002] and Merkley [2010] suggest the relation between MD&A modifications and operating results will depend on the direction of the change in operating results. More broadly, Miller [2002] and Merkley [2010] suggest that the type of information included in the MD&A (e.g., qualitative vs. quantitative) should vary with firm performance; however, the type of information discussed in the MD&A is not the main focus of BT.

## *3. The Score Measure*

### 3.1 WHAT DOES THE MODIFICATION MEASURE REALLY TELL US?

The authors partially motivate their analyses by referencing the SEC's "Plain English" regulations that, among other items, encouraged firms to remove out-of-date or "boilerplate" language from their filings. The authors suggest that removing boilerplate language (which mostly stays the same from document to document) will increase MD&A modifications.

As conference participants pointed out, however, a focus on MD&A modifications may not address the SEC's concerns. First, the SEC's Plain English regulations were focused on *readability*, not on changes to reports; it is quite possible that firms make major modifications on a year-to-year basis, but these modifications are so poorly written (incidentally or purposefully) that investors are confused by them. Second, whether modifications matter depends on what is being modified: several conference participants suggested that the authors break down modifications by the subject being discussed; for example, looking only at changes in discussion of operating results while ignoring discussion of market risks (which are often presented with few changes year to year). Section 7 of BT (which I examine later in this discussion) does this for a hand-collected subsample of firms with extreme MD&A modifications.

While BT focus on how their modification variable measures disclosure, prior research has focused on what the lexical properties of financial reports tell us about the firm. For example, Li [2008] shows that financial reports' tone and word choice predict earnings persistence: firms whose annual reports are easier to read have more persistent positive earnings. Is

there a similar role for *Score* in conveying information that aids investors in analyzing and valuing a firm? Given the costs investors face when processing financial filings, a measure of how much a filing has changed from last year could aid investors in allocating resources. For example, if an MD&A (or 10-K) is largely unchanged from last year, there is little need to analyze it again. (Related to this idea, it would be helpful to have an intuitive idea of the economic magnitude of the relation between *Score* and economic changes—section 5.2 reports economic magnitude in statistical terms (e.g., the difference in *Score* for firms in the top decile of an economic factor relative to the bottom decile), but what does this mean in terms of additional words, sentences, and paragraphs the investor needs to analyze?)

### 3.2 EMPIRICAL EVIDENCE ON MD&A MODIFICATION

The authors' first research question is whether changes in MD&A correlate with economic events experienced by the firm. This is operationalized as the association between *Score* and changes in (1) operating results, (2) liquidity, (3) market risk, and (4) business components.

The authors proxy for operating results with contemporaneous changes in earnings. Table 3 shows that absolute changes in earnings are positively correlated with the *Score* variable, that is, more extreme earnings changes are associated with greater changes in MD&A. While this correlation is logical, the emphasis in MD&A on forward-looking statements suggests that contemporaneous earnings changes are not the best operating measure to correlate with changes in MD&A. The authors, in fact, note that column 3 of table 3 (which uses decile ranks of the independent variables) indicates MD&A changes are more highly associated with changes in liquidity than with operating results. The authors suggest this is due to earnings announcements preempting 10-Ks with respect to operating results. In contrast, the 10-K is likely the better information source, relative to an earnings release, for liquidity information. However, as just noted, it is also possible the relatively weak correlation between MD&A changes and operating results is due to contemporaneous earnings changes not being the focus of the information presented in the MD&A. In particular, MD&A is the opportunity for managers to discuss items not clear from the *historical* financial statements and footnotes. Consistent with this, MD&A often contain projections of future activity such as capital expenditures or store openings. All of this suggests that the role of the MD&A in providing operating information can be analyzed further. What happens when future earnings changes are included in the table 3 regression? Do managers increase modifications of the MD&A when undertaking projects that will lead to future value? And, does talking about future value depend on current operating results as in Merkley [2010]?

When looking at table 3, one is struck by the uniform statistical significance of the independent variables: in the expanded model, all but the *BigN* variable are significant at the 10% level or better. The challenge seems to be to find a variable that is not correlated with modifications

to the MD&A! This raises the issue of what we learn from table 3. One possibility is that a "residual *Score*" variable, obtained from the residuals of the table 3 regression, represents management disclosure in the MD&A above and beyond contemporaneous economic events such as earnings changes, changes in leverage, or acquisitions. Such a discretionary measure of MD&A modification may be a better measure of how willing managers are to provide full and forthcoming disclosure.

Footnote 19 discusses econometric issues with the papers' empirical results. In particular, the authors discuss the possible use of firm fixed effects. Given the low $R^2$'s in table 3, the effect of firm (or industry) fixed effects could be quite useful. BT argue that the regression equation in table 3 examines "... the firm characteristics that contribute to firm-fixed effects" (p. 19). However, the concern is that *unobserved* firm characteristics are driving the MD&A modification measure, for example, managerial or investor preferences for disclosure. Is there an increase in explanatory power from including firm fixed effects (even after omitting firm-invariant variables from equation (2))?

After showing that *Score* is related to contemporaneous economic events, the authors evaluate whether investors and analysts react more strongly to 10-K filings when *Score* is high. Table 5 shows that, controlling for year effects, the information in the related earnings announcement, and firm size, *Score* is positively related to the market reaction to the release of the 10-K. My question on this is to what extent this relation is driven by *Score*'s relation to economic events (as documented in table 3)? In other words, is the market reacting to the MD&A modification or to the revealing in the 10-K of value-relevant economic events that are also associated with additional disclosure in the MD&A? I worry that tables 3 and 5 combine to demonstrate that *Score* is just a proxy for "things that the market cares about happened."

BT measure the investor reaction to the release of the 10-K with absolute firm returns. The literature on the information content of financial releases commonly uses an additional variable: abnormal trading volume (e.g., Beaver [1968], Landsman and Maydew [2002]). In particular, You and Zhang [2009] examine the market reaction to 10-K releases—they find that trading volume is unusually high around the 10-K release. One advantage of trading volume measures is that they can detect changes in investors' beliefs even when the overall market's beliefs do not change, that is, volume may increase even when returns are zero. If MD&A modifications are interpreted as a measure of information asymmetry, then the release of the 10-K and its associated MD&A may lead to a revision of beliefs among subsets of investors; these revisions may best be detected by examining trading volume and not just returns.

### 3.3 IS THERE A DEMAND FOR MD&A MODIFICATION?

In addition to management's willingness to provide information, the demand for that information will also affect the amount of disclosure. BT raise two issues regarding the demand for MD&A modification. First, to the

extent the 10-K is an untimely source of information, the demand for additional MD&A disclosure is likely to be low. Second, two common proxies for disclosure demand are the number of analysts following the firm and the extent of institutional ownership in the firm. However, BT, citing the lack of timeliness argument, decline to offer a firm prediction for the relation between *Score* and the analyst following and institutional ownership variables. Table 3 reveals that, in fact, *Score* is negatively correlated with analyst following and institutional ownership. While this supports the idea that MD&A (and the 10-K in general) is untimely, it also may reflect a low demand for MD&A modification by individual investors (who can rely on analyst reports for information about the firm) and institutional investors (who are likely to have better channels for information than public financial filings, e.g., buy-side analysts, access to management, conference calls, etc.).

## *4. Analysts and MD&A Modification*

Table 6 reports regressions of analyst forecast revisions on the *Score* variable and controls. In contrast to the table 5 evidence that investors react more strongly to 10-K releases when *Score* is higher, table 6 reveals that analyst forecast revisions (the difference in the mean forecast during the 30 days after the 10-K filing and the mean forecast in the 90 days prior to the 10-K filing) are unrelated to *Score*. This holds even for the subsample of analysts who make a nonzero revision following the release of the 10-K. The authors conclude that analysts do not rely on information in MD&A for their forecasts; conference participants discussed additional reasons for the lack of a relation between *Score* and forecast revisions.

First, there may be a "threshold" effect with analysts, that is, analysts revise their forecasts after a sufficient amount of new information has developed. If the MD&A modifications are sufficiently small, they may not amount to enough new information for analysts to make revisions within a 30-day window following the 10-K filing.

Second, as noted earlier in this discussion, MD&A tends to focus on aspects of the firm beyond current earnings. For example, MD&A will discuss changes in liquidity and solvency. While these factors are important for investors, they may be less important for analysts forecasting relatively short-term earnings. (This is consistent with figures 4a and 4b, which show that analysts are far more likely to revise forecasts after earnings announcements relative to 10-K filings.) In general, analysts' forecasts for year $t + 1$ may be too short-term to be associated with the more forward-looking information in the 10-K. As a result, it may be worthwhile to focus on analysts' forecasts of year $t + 2$ or $t + 3$ earnings or on analysts' long-term growth forecasts. Alternatively, one could look at price targets, which are more closely related to investor price reactions than are forecasts of earnings.

Third, the 10-K may be untimely enough that analysts have already incorporated its information into their analyses. In other words, whatever the information prompting modification of MD&A, the analysts already know

it and have acted on it by the time the 10-K is filed. Conference participants pointed out that this is a testable proposition: researchers can see if forecast revisions *prior* to the filing are associated with the modifications revealed at the filing. (However, if analysts have already revised their forecasts based on information disclosed in the 10-K, it is strange that the market has not already reacted to the forecast revisions.)

Fourth, the conference version of the paper showed a strong relation between the existence of negative special items and the *Score* variable, suggesting that management discusses the existence of and (possibly) reasons for these large, negative, components of earnings. If analysts focus on recurring components of earnings, they are less likely to care about the special items discussion in the MD&A, leading to less of a relation between *Score* and the analysts' revisions.

Fifth, a firm's stock price is a function of future discounted cash flows. If price changes but forecasts of future cash flows (as proxied by analyst forecast revisions) are unchanged, this suggests the discount rate applied to the firm's cash flows has changed. Is there evidence that firms experiencing price reactions (without analyst forecast revisions) are modifying their discussion of risk and uncertainty more than firms not experiencing price reactions?

## *5. Additional Research Avenues*

Conference participants provided several ideas for future research in this area. One common suggestion was for further examination of how analysts are affected by MD&A modifications: are forecast errors, for example, larger for firms with few innovations in their MD&A disclosures? Such an analysis would help calibrate the economic consequences of the *Score* measure. If unchanging MD&A is really a sign of opaqueness, then there should be a measurable consequence from refusing to provide new disclosures. The inability of market participants to understand the firm (as proxied by analysts forecast errors) could be one such consequence. (Of course, as discussed previously, whether a low value of *Score* represents a lack of transparency depends on whether managers had information to disclose. Perhaps correlating a discretionary *Score* variable with forecast errors would be more appropriate.)

A similar suggestion was to look at changes in other measures of information asymmetry. Again, the idea is to document an economic relation between MD&A modifications and a measurable outcome. If a lack of MD&A modification results in less information being provided to the market, we should see detrimental effects on common measures of information asymmetry (e.g., analyst forecast dispersion or bid-ask spreads). This reasoning also provides another motivation for examining volume reactions to the release of the 10-K. If a low value of *Score* proxies for information asymmetry, it may be related to differences in opinion among investors that manifest in increased trading volume at the 10-K release—even if the overall market's valuation of the firm is unchanged.

Several conference participants suggested refining the modification measure. In particular, it was suggested that the measure should only examine changes in the MD&A discussion of operating results. This would exclude much of the "boilerplate" material found in MD&A and possibly increase the power of the measure to detect fundamental changes in information. Another suggestion was to focus on similarities in sections of text and not just on an overall, numeric summary of similarities between consecutive 10-Ks. Antiplagiarism software is able to identify sections of text (sentences, paragraphs, pages, etc.) that are identical between documents. Using such software would allow for a more precise understanding of what is (or is not) similar between consecutive 10-Ks.

The authors address this issue of what is (or is not) being modified by hand-collecting a sample of MD&As from both high and low modification firms (see section 7 of BT). For these subsamples, the authors code the type of items found in the MD&A and how disclosure of these items changes between consecutive years. Perhaps the most interesting finding in this analysis is that high *Score* firms provide similar quantities of "interpretive disclosures" as low *Score* firms; however, they provide "significantly more forward-looking disclosure than the low-score group . . ." (page 28). This finding ties into the discussion of the difference between tables 5 and 6: investors (with long-term horizons) react more strongly to 10-K disclosures when *Score* is high, while the reaction of analysts (perhaps focused only on short-term earnings forecasts) shows no correlation with the *Score* variable.

One strange finding from this analysis is that managers use more words discussing operating results than liquidity and capital resources; further, they modify their discussion of operating results more than their discussion of liquidity and capital resources. This is somewhat at odds with the finding in table 3 that the *Score* variable is driven more by liquidity and capital resources changes than operating results. However, the authors also point out that liquidity and capital resource discussions are more "novel" in that they are unlikely to have been mentioned in the earnings press release or in the footnotes. Thus, the *Score* variable appears to gain much of its power from MD&A disclosures that are unique to the MD&A. This is an extremely useful result that could help guide future research into 10-Ks. As pointed out by many at the conference, 10-Ks do not, in general, elicit a strong market reaction. To the extent they are preempted by earnings releases, this is understandable. The in-depth analysis of MD&A content in BT provides evidence that preemption is an issue with the MD&A discussion of operating results but is less so for discussion of liquidity and capital resources.

## *6. Conclusion*

BT create and examine an innovative measure of disclosure by documenting changes in firms' MD&A. While prior papers have largely focused on the content and readability of disclosures, the MD&A modification mea-

sure focuses on the basic idea of whether a firm's disclosures have changed through time as the firm itself has changed. Conference participants provided explanations for the relation between MD&A modifications and measures of investor and analyst reaction along with numerous suggestions for future research using the MD&A modification measure. While the measure is only one among many variables that describe financial disclosures and can aid investors, it has potential to increase our knowledge of firm disclosure policy and the uses of disclosures by market participants. However, given the decline in the usefulness of MD&A to investors, the modification tool may be most useful in the future as a measure of changes in other filings, reports, and disclosures.

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