Impact of SOX on Management Communication Behavior: An Examination of Selected Financial Firms

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This paper investigates whether SOX has any impact on management communication behavior using Habermas' norms of effective communicative action. In examining the MD&As of the annual reports from 1993 through 2012 (except 2002 and 2003) of 30 large companies in the financial sector, I find that SOX has a significant impact on management communication in their company disclosures with regard to all the Habermas' norms except sincerity. SOX raises comprehensibility and truthfulness but lowers legitimacy as demonstrated by corporate management in their discussion and analysis of the firms' operations. The results are significant even after controlling for the profitability, size and industry of the firms.

INTRODUCTION

Habermas (1984, 1987) developed a theory in which various practical reasons were employed to establish four principles of effective communicative action. In accordance with this theory, effective communicators are expected to demonstrate comprehensibility, truthfulness, sincerity, and legitimacy in their discourses. This study is an extension to Yuthas, Rogers, & Dillard (2002), with an attempt to further operationalize the Habermas' principles as applied to the business communication setting. I investigate the communication behavior of corporate management in the disclosure of their firms' operations using the four Habermas' principles. In addition, the impact of the Sarbanes-Oxley Act (in short, SOX) on management communication behavior is evaluated at the same time.

To accomplish the above tasks, the rhetorical analysis software, Diction 6, was run on the MD&A sections (Item 7 only from 1993 through 2000 and both Item 7 and Item 7A thereafter) of the annual reports of the sample firms to generate the related individual variable and composite scores used for the Habermas' principles. I calculate the new composite scores for the four Habermas' norms according to Yuthas et al. (2002). Although SOX was passed and enacted in 2002, the major sections associated with company disclosures and financial reporting were not made effective until 2004. Thus, in this study, the pre-SOX period is defined as running from 1993 through 2001 whereas the post-SOX period from 2004 through 2012. There are nine years in both periods.

I find that SOX has a significant impact on management communication in the company disclosures with regard to all the Habermas' norms except sincerity. SOX raises the comprehensibility and truthfulness but lowers the legitimacy demonstrated by corporate management in their discussion and analysis of the firms' operations. The results are significant even after controlling for the profitability, size and industry within the financial sector of the firms.

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This paper is organized as follows. Section 2 provides a detailed account of the previous research on the impact of SOX on corporate disclosures and financial reporting. Section 3 presents the background of the study. Section 4 describes the sample formation and empirical testing. Section 5 discusses the findings, followed by the conclusions in Section 6.

LITERATURE REVIEW

Since the passage and the subsequent enactment of SOX in 2002, there has been numerous research conducted to evaluate its effectiveness regarding, but are not limited to, company disclosures. Gordon, Loeb, Lucyshyn, & Sohail (2006) studied the voluntary disclosures of information security activities and found that SOX affects these disclosures (which received more focus) positively after its enactment. At the same time, Coates (2007) gave an account explicitly discussing the serious problems in estimating the impact of SOX, particularly Section 404. Although the primary objective of the act's passage was to improve the quality and quantity of corporate disclosures through a variety of disclosure requirements and corporate governance mandates (Coates, 2007; Holmstrom & Kaplan, 2003; and Kroszner, 2004), the fact that the law was enforced in the midst of significant financial, economic and political changes added to the complication. Thus, no general consensus could be drawn relative to the effectiveness or value of SOX in those days. The lack of a control group of publicly traded firms also presented some difficulties in assessing the impact of SOX (Leuz, 2007; Hochberg, Sapienza, & Vissing-Jorgensen, 2009; and Wang, 2010). Despite the difficulty in assessing its impact, Section 404 of SOX does create powerful incentives for executives and auditors to disclose control system weakness (Coates, 2007) and have strong effects on financial reporting (Iliev, 2010).

In fact, it is still not very clear whether SOX has contributed to more informative overall disclosures. While Hammersley, Myers, & Shakespeare (2008) succeeded to illustrate that mandatory disclosures of weakness in internal controls seem to have a significant impact on stock prices (thus material to investors), Ogneva, Rahunanhan, & Subramanyam (2007) found no evidence that such mandatory disclosures are associated with a change in the cost of capital of a firm. At the same time, Bhattacharya, Groznik, & Haslem (2007) failed to prove that CEO certification is significantly associated with share prices in any direction.

According to the public float rule in 2002, firms that had a public float above $75 million in 2002 were required to comply with SOX Section 404 in 2004 (Iliev, 2010). Using this public float rule to identify the study subjects and investigate the costs of Section 404 to small firms, Iliev (2010) found that the attestation by the outside auditor of the management's report (MR) significantly adds to the reporting costs for small firms. In fact, filing an MR in 2004 increased the audit fees by as much as 98%. In addition, Section 404 also contributes to the additional conservatism in financial reporting which is reflected in the significantly lower accruals and discretionary accruals in 2004.

In studying whether Section 404 of SOX had reduced the opaqueness of cross-listed firms, Arping & Sautner (2013) examined the analyst's earnings forecasts (in particular forecast error and forecast dispersion) of firms in 15 European Union (EU) countries that were cross listed in the US (as the treatment sample) and similar non-cross listed EU firms (as the control sample) in these countries over the period from 2001 through 2007 (an unbalanced sample of 1,923 firms and 7,666 firm-year observations). As the cross listed firms were subject to Section 404 whereas the non-cross listed firms were not, these two samples enabled a good test for the impact of SOX on corporate disclosure quality. Apring & Sautner (2013) found that the opaqueness of the two types of firms are lowered with the cross listed firms demonstrated a significantly much greater decrease in the opaqueness. In other words, the treatment firms became more transparent post-SOX. These findings suggest that SOX improves the corporate disclosure quality.

The closest study to this paper is Kogan, Routledge, Sagi, & Smith (2010) which applied a novel text regression, as discussed in Kogan, Levin, Routledge, Sagi, & Smith (2009), on the MD&A sections from the annual reports (Form 10-K) of 8,393 publicly traded companies in the US over the eleven-year period from 1996 through 2006 and found that the MD&As are more informative post-SOX about the firm's

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future risk. In particular, Kogan, et al. (2010) predicted the out of sample firm return volatility based on the MD&As. In their study, some additional information was also found associated with a reduction in share illiquidity. These findings suggest that the information revealed is new to investors. Those firms with high information production costs, including the ones with low market capitalization, high book-to-market ratio, low analyst coverage, or high analysts forecast dispersion, tend to have the greatest improvement in performance in the post-SOX era according to the text-based model. A possible explanation for this is the aim of narrowing of the gaps in information asymmetry among the firms.

BACKGROUND OF THE STUDY

Sarbanes-Oxley Act of 2002

In order to protect shareholders' interest and prevent corporate insiders from misrepresenting company performance and redirecting company resources for their own personal benefits, the Sarbanes-Oxley Act (SOX) was passed in the House and Senate on July 25, 2002. The act's official name is the Public Company Accounting Reform and Investor Protection Act of 2002. The passage of SOX was triggered by the scandals and subsequent collapses of several large corporations such as Enron, Qwest Communications, Global Crossing, WorldCom, Adelphia, and Tyco in late 2001 and early 2002. In accordance with SOX, the Public Company Accounting Oversight Board (PCAOB) was established. In addition, new rules and restrictions were also presented to corporations, their directors and performance auditors. The Security Exchange Commission (SEC) was charged with enforcing the law. From the time when it was enacted, SOX has widely been accepted as having introduced the most sweeping changes to US business legislation since the 1930s.

The principal objective of SOX was to restore the shaking confidence of investors (Rezaee, 2004; Jain, Kim & Rezaee, 2003; and Rezaee & Jain, 2003) in 2002 by improving the reliability of the issuer disclosure in the financial markets. The SOX consists of altogether eleven titles which are, in turn, subdivided into multiple sections. Among these titles is Title IV which deals mainly with the various financial disclosures. This title covers disclosures in periodic reports, enhanced conflict of interest provisions, disclosure of transactions involving management or principal stockholders, disclosure of the existence of an audit committee financial expert as well as management assessment of internal controls. On the other hand, Title I mainly deals with the establishment of the PCAOB and its responsibilities which include the determination and regulation of the standards for the enhanced disclosures mandated by Title IV. Title III places certain requirements for the composition and working of the audit committee and requires the CEO and CFO to certify, based on their knowledge, that the annual report contains all material information and represents the financial condition and results fairly (Arping& Sautner, 2013; Hochberg et al., 2009; and Kogan et al. , 2010).

Since the focus of this research is on management communication behavior in corporate disclosures pre- and post-SOX, I limit my discussion to cover the related aspects only. With the aim of enhancing disclosures by public companies, SOX requires issuer's management to certify the financial information of the firm with regard to their accuracy and completeness. Failure to do so will result in charges filed by the Justice Department according to Section 906 of the act (Hochberg, et al., 2009). Additionally, company annual reports (Forms 10-Ks) must have the following attachments: management's report on internal accounting control and the report of the issuer's outside auditors on management's report (Section 404). Company insiders are required to file the changes in their ownership within two business days of the change. Company annual and quarterly reports filed with the SEC are required to disclose all the material off-balance sheet transactions and all relationships of the issuer with any person who may have significant influence on the firms' financial condition (Schaumann, 2004 and Hochberg, Sapienza, & Vissing-Jorgensen, 2009).

The sections which are particularly relevant to financial disclosures are Sections 302, 401, 404, and 906. Section 302 (on corporate responsibility for financial reports) requires CEOs and CFOs to certify that they have read the financial reports of their companies and these reports provide a fair, true and non-

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misleading representation of the financial situation of the companies. Section 401 (on disclosures in periodic reports) requires firms to disclose their material off-balance sheet transactions, if any. The firm's management also needs to attest to the completeness and accuracy of their pro forma financials. Section 404 (on management assessment of internal controls) requires firms to include a discussion on their internal controls in their annual reports. The discussion needs to highlight any material weaknesses of the firms. Section 906 (on corporate responsibility for financial reports) requires firms to provide information on the criminal penalties for the non-compiling executives (Arping& Sautner, 2013; Hochberg et al., 2009; and Kogan et al., 2010).

Prior to the effective date of Section 404, firms began reporting on internal controls quarterly under Section 302 (effective August 29, 2002, almost immediately after the passage of SOX) which were applied to all registrants. Since its effective day, Section 404 has been considered more important and powerful, as compared with Section 302. Here are some explanations. The exact reporting requirements related to material weaknesses are not very clear under Section 302 (Doyle, Ge, & McVay, 2007) whereas such disclosure is much more clearly mandated under Section 404. In addition, Section 404 reports are subject to additional documentation requirements as well as the necessary scrutiny of the independent auditor in order to enhance the chance of detecting (and subsequent disclosing) the existing weaknesses (Rice & Weber, 2012; Ashbaugh-Skaife, Collins, Kinney, & LaFond, 2009; Coates, 2007; Hochberg, et al., 2009; and Wang, 2010).

Despite its benefits to the investors, there has been an increase in the number of both firms deregistering from the SEC (Leuz, Triantis, & Wang, 2008) and firms going private (Engel, Hayes, & Wang, 2007, and Block, 2004) after the passage of SOX. In addition, in an examination of the US acquisition targets, Kamar, Karaca-Mandic, & Talley (2006) found a greater propensity for those targets to be acquired by private rather than public acquirers in the post-SOX period. Further, Kamar, Karaca-Mandic, & Talley (2007) concluded, after reviewing the then literature available, the costs imposed by the act are greater for small firms, consistent with the views of the act's critics that it has raised the net costs of being public, with the burden relatively heavier for smaller firms (Romano, 2005 and Ribstein, 2002).

Habermas' Principles of Communication

Following the argument that each time a person communicates, the person needs to rely upon a set of norms or validity claims that are in general accepted by all participants, (Habermas, 1984, 1987) developed a communicative action theory which employed various practical reasons to establish these norms. The resulting Habermas' principles for effective communicative action expect communicators to be comprehensive, truthful, sincere and legitimate in their discourses. In the Habermas' communication framework, the comprehensibility claims emphasize that the speech (or other forms of discourse) made by the communicator should be understandable; the truthfulness claims stress that the content of the speech (or other forms of discourse) should be factually correct; the sincerity claims content that the communicator should be sincere in representing his/her motives; the legitimate claims state that the communicator should be justifiable in making his/her statements.

The following provides a brief discussion on these four principles as applied to the business communication setting, especially in the Management Discussion and Analysis (MD&A) of firm operation contained in the company annual reports.

Comprehensibility

According to the comprehensibility principle, managers should communicate in the way that can be easily understood, even by the average people. To achieve this, managers can use commonly-used terminologies and avoid the industry and firm-specific jargons or complex logics that could add to the readers' confusion. Firms that follow this principle will try to provide their MD&A narratives using more common terminologies and focusing on concrete matters. Despite the fact that auditors will prevent firms from making misleading statements in their annual reports, managers may choose to mislead or confuse readers by using rhetorical devices that could lower the comprehensibility of their communication.

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Truthfulness

Based on the truthfulness principle, what the managers communicate must be factually correct and verifiable. Since the annual reports are required by law to be evaluated by auditors, firms are forced to include statements that are factually correct and verifiable in their MD&As. However, some managers may choose to omit some information or alter the tone of the information presented.

Sincerity

Under the sincerity principle, communicators should accurately represent their perceptions, interests and objectives in their communications. In other words, managers must be authentic in their representations so that readers of their annual reports can develop an understanding of their views as well. However, under certain circumstances, managers may choose to disguise their true views.

Legitimacy

Following the legitimacy principle, managers would use appropriate language to help keep readers' attention focused and enhance their understanding in the company discourse. It is not uncommon that managers may choose to use inappropriate language or style of communication at times to draw readers' attention away from their discourse.

SAMPLE FORMATION AND EMPIRICAL TESTING

Public companies in the US are required to file their annual reports with the SEC. These annual reports contain a section in which the management of the firms discuss and analyze the financial conditions and results of their firms' operations (Item 7 Management's Discussion and Analysis of Financial Condition and Results of Operations) and a section in which the management disclose the market risk of their firms both qualitatively and quantitatively (Item 7A Quantitative and Qualitative Disclosures About Market Risk). For the earlier years until 2000, there was no Item 7A. Corporate management's discussion, analysis and disclosure of both the operation and market risk of the firms were included mainly under Item 7. Due to the increasing length and complexity of the disclosure of the company risk, annual reports filed after 2000 have a separate section of Item 7A.

In this paper, I study whether there is any impact of the enactment of SOX on management communication behavior. I extracted the Management Discussion and Analysis (MD&A) sections from the annual reports (Form 10-Ks) of some selected companies in the financial sector of the S&P500 firms as of February 1, 2013 (the date on which the research started). Only those firms on this target list with filing of annual reports available from 1993 through 2012 on the Edgar website http://www.sec.gov/edgar.shtml) were included. The resulting sample consists of 30 companies.

Item 7 only for 1993 through 2000 and both Item 7 and Item 7A thereafter were extracted manually from the annual reports. From the extracted MD&As, I removed all the HTML mark-up codes, if any. For example, all those "<C>", "<S>", "<Caption>", "</Table>" and the like were excluded. After that, I ran Diction 6 on the cleaned MD&As to obtain the values of the variables and composite scores attributed to the four norms required for effective communications.

The GICS-Sub Industry distribution of the sample companies is given in TABLE 1 below. There are relatively more banks (40%) than the other types of financial firms in the sample. TABLE 2 illustrates that these 30 companies on average have grown almost 4 times in the post-SOX period as compared with the pre-SOX period. They have also generated twice as much net income in the post-SOX period.

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TABLE 1
GICS-SUB INDUSTRY DISTRIBUTION OF THE SAMPLE FIRMS

GICS-Sub Industry	Number of Firms	Percentage
Bank	12	40.00
Consumer Finance	1	3.33
Diversified Financial Service	4	13.33
Life & Health Insurance	2	6.67
Multi-sector Holdings	2	6.67
Multi-line Insurance	1	3.33
Property and Casualty Insurance	5	16.67
Real Estate Investment Trust (REIT)	3	10.00
Total	30	100.00

TABLE 2
SIZE AND PROFITABILITY OF THE SAMPLE FIRMS

		Pre-SOX (1993 through 2001)				**Post-SOX** (2004 through 2012)			
		Mean	Std. Dev.	Min	Max	Mean	Std. Dev.	Min	Max
Total Assets	Overall	80.21	149.93	.55	1,051.45	307.02	562.94	3.10	2,359.14
	Between		121.583	1.35	462.36		552.09	4.52	1,833.07
	Within		90.203	-327.54	669.30		145.48	-385.07	864.00
Net Income	Overall	1.03	1.79	-1.09	14.13	2.21	7.93	-99.29	24.59
	Between		1.39	.08	5.80		3.47	-4.33	13.08
	Within		1.16	-4.48	9.36		7.15	-92.75	25.04

Source: The statistics (across all firm years) are calculated with the total assets and net income obtained from the Form 10-Ks from 2004 through 2012, except 2002 and 2003, of the sample firms. The reported numbers are in billions of dollars.

The main objective of SOX is to improve the reliability of the issuer disclosures to the participants in the financial markets. In other words, SOX is expected to enhance the quality of management disclosures and financial reporting. Referring to the Habermas' principles of effective communicative action, I expect an increase in comprehensibility, truthfulness, sincerity and legitimacy found in the MD&As of annual reports filed post-SOX as compared with the pre-SOX period.

The following panel regression analyses with firm random effects are conducted.

$$\text{Habermas' Norm}_{i,t} = \text{const} + b_i SOX_t \; [+ \, NetIncome_{\,i,t} + Asset_{i,t} + \textstyle\sum_{n=1}^{7} Industry_{n,i} \,] + \varepsilon_{i,t} \qquad (1)$$

where SOX_t is a dummy variable taking the value of 0 from 1993 through 2001 (pre-SOX), and the value of 1 in the years 2004 through 2012 (post-SOX); $Asset_{i,t}$ is the balance of total assets of Firm i as at the end of Year t; $NetIncome_{i,t}$ is amount of net income generated by Firm i during Year t; $\sum_{n=1}^{7} Industry_{n,i}$ is a series of dummy variables which are defined as below.

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$Industry_{1,i}$ = 1, all else = 0: indicates that Firm i is a provider of consumer finance,
$Industry_{2,i}$ = 1, all else = 0: indicates that Firm i is a provider of diversified financial services,
$Industry_{3,i}$ = 1, all else = 0: indicates that Firm i is a provider of life and health insurance,
$Industry_{4,i}$ = 1, all else = 0: indicates that Firm i is a multi-sector holdings firm,
$Industry_{5,i}$ = 1, all else = 0: indicates that Firm i is a provider of multi-line insurance,
$Industry_{6,i}$ = 1, all else = 0: indicates that Firm i is a provider of property and casualty insurance,
$Industry_{7,i}$ = 1, all else = 0: indicates that Firm i is a REIT,
Otherwise, represents that Firm i is a bank

The dependent variable Habermas' $Norm_{i,t}$ covers $Comprehensibility_{i,t}$, $Truthfulness_{i,t}$, $Sincerity_{i,t}$ and $Legitimacy_{i,t}$ determined from the company discourse in the MD&A of Firm i for Year t.

The value of the individual variables or composite scores of the various communication aspects necessary for the composite scores of comprehensibility, truthfulness, sincerity and legitimacy for each firm-year is generated by first running Diction 6 on the cleaned MD&As. Then a composite score for each norm is calculated according to Yuthas et al. (2002) as below.

Comprehensibility = Realism – Denial (2)
Truthfulness = Certainty + Present Concern (3)
Sincerity = Optimism + Activity + Commonality (4)
Legitimacy = Variety – Embellishment – Blame (5)

where

Realism, a composite score that measures the use of "language describing tangible, immediate, recognizable matters that affect people's everyday lives" (Hart and Carroll, 2012, p. 4), is calculated by Diction 6 as below.

Realism = [Familiarity + Spatial Awareness + Temporal Awareness + Present Concern + Human Interest + Concreteness] – [Past Concern + Complexity] (6)

- "Familiarity" is a measure of the use of common English words.
- "Spatial Awareness" is a measure of the use of words that refer to geographical locations and physical distances as well as modes of measurement.
- "Temporal Awareness" is a measure of the use of words that fixed events within a specific time-interval.
- "Present Concern" is a measure of the use of present-tense verbs.
- "Human Interest" is a measure of the use of personal pronouns and other words concentrating on people.
- "Concreteness" is a measure of the use of words that indicate tangibility and materiality.
- "Past Concern" is a measure of the use of past-tense verbs.
- "Complexity" is a measure of the average number of characters per word.

Certainty, a composite score that measures the use of "language indicating resoluteness, inflexibility, and completeness and a tendency to speak ex cathedra" (Hart and Carroll, 2012, p.4), is calculated by Diction 6 as below.

Certainty = [Tenacity + Leveling + Collectives + Insistence] – [Numerical Terms + Ambivalence + Self Reference + Variety] (7)

- "Tenacity" is a measure of all uses of "verb to be" and their variants, which, in turn, provides a measure of confidence and totality.
- "Leveling" is a measure of the use of words that convey a sense of completeness and assurance.

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- “Collectives” is a measure of the use of singular nouns that imply plurality, thus reduce specificity.
- “Insistence” is a measure of repeated nouns. It is calculated by Diction 6 as [Number of eligible words × Sum of their occurrences]/10.
- “Numerical Terms” is a measure of the use of numbers such as sum, date, or product.
- “Ambivalence” is a measure of the use of words that indicate hesitation or uncertainty, in turn, the communicator’s inability and unwillingness to commit.
- “Self-Reference” is a measure of the use of first-person references.
- “Variety” is a measure of the avoidance of overstatement and the preference for clear and structured statements. It is calculated by dividing the number of different words by the total number of words in the passage analyzed.

Optimism, a composite score that measures the use of “language endorsing some person, group, concept or event or highlighting their positive entailments” (Hart and Carroll, 2012, p.4), is calculated by Diction 6 as below.

$$\text{Optimism} = [\text{Praise} + \text{Satisfaction} + \text{Inspiration}] - [\text{Blame} + \text{Hardship} + \text{Denial}] \quad (8)$$

- “Praise” is a measure of the use of words that provide affirmation of the subject of discourse
- “Satisfaction” is a measure of the use of words associated with positive performance.
- “Inspiration” is a measure of the use of nouns related to moral and personal qualities such as honesty.
- “Blame” is a measure of the use of adjectives that describe social inappropriateness or unfortunate circumstances.
- “Hardship” is a measure of the use of words that are associated with natural disasters, blamable human behavior, antagonistic actions, negative political outcomes, normal human fears.
- “Denial” is a measure of the use of standard negative contractions and negative function words as well as words implying null sets.

Activity, a composite score that measures the use of “language featuring movement, change, the implementation of ideas and the avoidance of inertia” (Hart and Carroll, 2012, p.4), is calculated by Diction 6 as below.

$$\text{Activity} = [\text{Aggression} + \text{Accomplishment} + \text{Communication} + \text{Motion}] - [\text{Cognitive Terms} + \text{Passivity} + \text{Embellishment}] \quad (9)$$

- “Aggression” is a measure of the use of words that are associated with competition and forceful action.
- “Accomplishment” is a measure of the use of words that express task completion and organized human behavior.
- “Communication” is a measure of the use of words that refer to social interaction.
- “Motion” is a measure of the use of words that suggest human movement, physical process, journeys, speed and modes of transit.
- “Cognitive Terms” is a measure of the use of words that refer to cerebral processes.
- “Passivity” is a measure of the use of words that suggest a range from neutrality to inactivity.
- “Embellishment” is a composite score which measures the use of language that de-emphasizes human and material action. It is calculated as below. $\text{Embellishment} = [\text{Praise} + \text{Blame} + 1] / [\text{Present Concern} + \text{Past Concern} + 1]$

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Commonality, a composite score that measures the use of "language highlighting the agreed-upon values of a group and rejecting idiosyncratic modes of engagement" (Hart and Carroll, 2012, p4), is calculated by Diction 6 as below

$$\text{Commonality} = [\text{Centrality} + \text{Cooperation} + \text{Rapport}] - [\text{Diversity} + \text{Exclusion} + \text{Liberation}] \quad (10)$$

- "Centrality" is a measure of the use of words that imply institutional regularities and/or essential agreement on core values.
- "Cooperation" is a measure of the use of words that suggest a spirit of teamwork.
- "Rapport" is a measure of the use of words that describe attitudinal similarities.
- "Diversity" is a measure of the use of words that describe how individuals or groups differ from the norm.
- "Exclusion" is a measure of the use of words that describe the sources and effects of social isolation.
- "Liberation" is a measure of the use of words that describe maximizing individual choice and the rejection of social conventions.

DISCUSSION OF RESULTS

From TABLE 3(a), it can be seen that, after the passage and subsequent enactment of SOX (in 2002) and its various sections made effective (in 2004), the management of the sample firms, on average, tended to use in the MD&As more wording that signifies resoluteness, inflexibility and completeness. They also had a greater tendency to speak with the authority derived from their position (higher certainty). They used fewer "to be" verbs (lower tenacity) and fewer words that build a sense of completeness and assurance (lower leveling). In addition, they used fewer singular nouns that imply plurality (lower collectives) as well as fewer numbers (lower numerical terms). On the other hand, they used more repeated nouns (higher insistence), more words that indicate hesitation or uncertainty (higher ambivalence), and more first personal references (higher self-reference). As for their avoidance of overstatement and preference of using clear and structured statements, there is not much difference between the pre- and post-SOX period (same variety).

As shown in TABLE 3(b), in the post-SOX period, managers used relatively less wording that supports some person, group, concept, event or highlighting their necessary accompaniment or positive consequence (lower optimism). They used relatively fewer nouns that are associated with moral and personal qualities (lower inspiration) as well as fewer standard negative contractions and negative function words (lower denial). At the same time, they used relatively more words that provide affirmation of their companies (higher praise), more words associated with positive performance (higher satisfaction), more adjectives that describe social inappropriateness or unfortunate circumstances (higher blame), and more words that are associated with natural disasters, blamable human behavior, antagonistic actions, negative political outcomes and normal human fears (higher hardship).

As illustrated in TABLE (c), the managers used less wording that (i) emphasizes movement, change and the implementation of ideas as well as (ii) demonstrates avoidance of inertia (lower activity) post-SOX. They used relatively fewer words that express task completion (lower accomplishment), fewer words that refer to social interaction (lower communication), and fewer words that suggest a range from neutrality to inactivity (lower passivity). On the other hand, they used relatively more words that are associated with competition and forceful action (higher aggression), more words that suggested human movement (higher motion), more words that refer to cerebral processes (higher cognitive terms), and more words that de-emphasizes human and material action (higher embellishment).

According to TABLE 3(d), after the enactment of SOX, the managers used more wording that explains tangible, immediate, recognizable matters which are associated with people's everyday lives (higher realism). They used relatively fewer words that fixed events with a specific time-interval (lower

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temporal awareness). However, they used more common English words (higher familiarity), more words that refer to geographical locations and physical distances (higher spatial awareness), more present-tense verbs (higher present concern) and past-tense verbs (higher past concern), more personal pronouns and other words concentrating on people (higher human interest), more words that indicate tangibility and materiality (higher concreteness), and more words of more characters per word (high complexity).

TABLE 3(e) shows that, in the post-SOX period, managers used more wording that accentuates the agreed-upon values of a group and refuses to accept peculiar modes of engagement (higher commonality). They used relatively fewer words that describe (i) maximizing individual choice and (ii) rejection of social conventions (lower liberation). On the other hand, they used relatively more words that imply institutional regularities and/or essential agreement on core values (higher centrality), more words that suggest a spirit of teamwork (higher cooperation), more words that describe attitudinal similarities (higher rapport), more words that describe how individual or group differ from the norm (higher diversity), and more words that describe the sources and effects of social isolation (higher exclusion).

In sum, the sample corporate managers demonstrated relatively higher certainty, realism and commonality but lower optimism and activity in their post-SOX disclosures. These suggest that managers are aware of their new role in financial reporting and try to stick to the disclosure requirements specified in SOX. On one hand, they try to be more authentic by using the more determined wording derived from their positions, facts and agreed-upon values. On the other hand, they are afraid of and/or avoid giving promises by using less wording that highlight accompaniment, positive consequences, change and implementation of new ideas.

TABLE 4 shows that SOX has a significant impact on management communication in the company disclosures with regard to all the Habermas' norms except sincerity. SOX raises the comprehensibility and truthfulness but lowers the legitimacy demonstrated by the corporate management in their discussion and analysis of the firms operation. The results are significant even after controlling for the firm's profitability, size and industry within the financial sector. Firm size (measured by total assets) bears a significantly negative (positive) association with comprehensibility (truthfulness). This seems to suggest that the larger the firms grow, the more difficulty it will be for management to communicate clearly. On the other hand, as the firm grows, the management tends to provide more truth in their communications. Providers of diversified financial services and REITs offer relatively more truthfulness whereas providers of property & casualty insurance give relatively less legitimacy in their MD&As.

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TABLE 3
COMPARISON OF COMMUNICATION ATTRIBUTES IN CORPORATE DISCLOSURES PRE- AND POST-SOX

(a) Certainty

Variable		Pre-SOX (1993 through 2001)				Post-SOX (2004 through 2012)				Change in Mean
		Mean	Std. Dev.	Min	Max	Mean	Std. Dev.	Min	Max	
Certainty	***Overall***	***40.80***	***8.95***	***9.93***	***55.14***	***43.22***	***9.49***	***6.00***	***56.53***	higher
	Between		7.23	19.75	48.04		8.07	21.46	51.54	
	Within		5.41	12.98	61.52		5.20	24.19	65.71	
Tenacity	Overall	12.49	6.13	0.42	39.27	11.46	5.15	1.20	26.04	lower
	Between		4.51	5.17	21.67		3.76	2.94	18.40	
	Within		4.23	1.39	30.09		3.58	0.28	25.40	
Leveling	Overall	5.81	3.33	0.62	23.35	5.44	2.65	0.63	20.43	lower
	Between		2.15	1.64	10.66		1.90	1.76	9.05	
	Within		2.57	-0.32	20.32		1.88	1.16	18.97	
Collectives	Overall	6.67	5.13	0.03	38.43	5.77	5.27	0.34	37.64	lower
	Between		3.34	1.17	17.33		4.04	1.59	19.55	
	Within		3.93	-9.21	27.76		3.46	-3.97	24.16	
Insistence	Overall	193.30	74.87	52.45	498.24	205.26	83.30	31.65	496.05	higher
	Between		40.22	103.97	275.80		55.02	80.45	349.98	
	Within		63.53	33.22	496.73		63.27	51.45	421.77	
Numerical Terms	Overall	99.27	70.56	8.12	337.81	77.24	75.40	2.49	362.82	lower
	Between		58.44	42.88	262.38		66.07	8.33	245.53	
	Within		40.80	-56.29	311.03		38.07	-106.95	235.76	
Ambivalence	Overall	3.10	3.10	0.07	23.87	4.42	3.84	0.01	19.70	higher
	Between		1.60	0.52	7.31		3.44	0.42	17.60	
	Within		2.67	-3.18	19.66		1.80	-5.86	11.96	
Self-Reference	Overall	0.09	0.31	0.00	2.41	0.15	0.41	0.00	3.31	higher
	Between		0.16	0.00	0.70		0.25	0.00	1.12	
	Within		0.27	-0.59	2.09		0.33	-0.96	3.09	
Variety	Overall	0.42	0.11	0.17	0.70	0.42	0.11	0.16	0.70	same
	Between		0.07	0.25	0.53		0.08	0.24	0.53	
	Within		0.08	0.18	0.68		0.08	0.19	0.71	

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TABLE 3
COMPARISON OF COMMUNICATION ATTRIBUTES IN CORPORATE DISCLOSURES PRE- AND POST-SOX (CONT.)

(b) Optimism

		Pre-SOX (1993 through 2001)				Post-SOX (2004 through 2012)				Change in Mean
Variable		Mean	Std. Dev.	Min	Max	Mean	Std. Dev.	Min	Max	
Optimism	***Overall***	***49.12***	***1.77***	***43.07***	***67.59***	***48.86***	***1.43***	***43.79***	***53.76***	lower
	Between		0.94	47.35	51.99		1.07	46.70	50.99	
	Within		1.51	42.71	64.71		0.96	44.42	51.79	
Praise	Overall	1.52	1.28	0.00	7.41	2.18	1.82	0.16	9.30	higher
	Between		0.83	0.60	4.13		1.19	0.49	5.43	
	Within		0.98	-1.10	6.25		1.39	-0.89	8.31	
Satisfaction	Overall	0.48	0.67	0.00	4.67	0.54	0.56	0.00	3.08	higher
	Between		0.38	0.00	1.89		0.41	0.03	1.36	
	Within		0.55	-1.31	4.32		0.39	-0.33	2.75	
Inspiration	Overall	2.92	5.75	0.12	86.44	2.63	3.27	0.12	19.58	lower
	Between		2.67	0.70	13.66		3.04	0.43	16.81	
	Within		5.11	-9.46	75.70		1.31	-2.35	9.15	
Blame	Overall	0.35	0.57	0.00	4.60	0.58	0.71	0.00	4.08	higher
	Between		0.31	0.00	1.16		0.52	0.03	2.46	
	Within		0.49	-0.55	4.15		0.48	-1.59	2.82	
Hardship	Overall	4.33	4.29	0.00	28.82	6.01	4.18	0.59	24.26	higher
	Between		2.38	0.79	11.34		3.38	0.99	12.48	
	Within		3.59	-3.67	22.63		2.54	-0.36	20.25	
Denial	Overall	2.56	2.98	0.01	26.66	2.31	2.17	0.00	18.64	lower
	Between		1.55	0.28	5.99		1.44	0.43	7.06	
	Within		2.56	-2.29	23.93		1.64	-2.79	16.99	

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TABLE 3
COMPARISON OF COMMUNICATION ATTRIBUTES IN CORPORATE DISCLOSURES PRE- AND POST-SOX (CONT.)

(c) Activity

			Pre-SOX (1993 through 2001)				**Post-SOX** (2004 through 2012)			**Change in Mean**
Variable		Mean	Std. Dev.	Min	Max	Mean	Std. Dev.	Min	Max	
Activity	***Overall***	***49.31***	***3.66***	***39.32***	***100.32***	***49.08***	***2.54***	***32.41***	***55.06***	lower
	Between		1.51	46.43	54.91		1.86	45.23	52.97	
	Within		3.35	39.06	94.72		1.76	36.26	54.03	
Aggression	Overall	1.70	1.90	0.00	15.49	2.44	2.94	0.00	14.34	higher
	Between		1.24	0.00	5.04		2.54	0.39	11.01	
	Within		1.46	-2.79	12.15		1.56	-3.22	10.38	
Accomplishment	Overall	17.78	12.43	4.10	180.49	17.46	8.59	4.11	43.66	lower
	Between		6.31	8.27	41.35		7.37	8.48	37.06	
	Within		10.77	-9.61	156.92		4.59	0.38	35.00	
Communication	Overall	4.99	15.51	0.05	250.20	4.87	4.41	0.02	22.62	lower
	Between		5.64	0.18	31.63		3.59	0.39	14.81	
	Within		14.48	-24.73	223.56		2.63	-1.64	19.78	
Motion	Overall	0.47	0.74	0.00	5.95	0.63	0.81	0.00	5.93	higher
	Between		0.55	0.00	2.34		0.71	0.03	2.93	
	Within		0.51	-1.65	4.09		0.41	-0.87	3.63	
Cognitive Terms	Overall	6.48	3.84	0.34	24.73	8.34	5.60	1.06	42.42	higher
	Between		2.15	1.57	10.09		4.92	1.66	23.18	
	Within		3.20	-1.24	21.25		2.81	-0.78	30.07	
Passivity	Overall	4.87	5.56	0.42	84.78	4.79	2.43	0.67	17.45	lower
	Between		2.36	1.87	13.33		1.73	1.34	7.94	
	Within		5.05	-7.20	76.33		1.73	-0.09	17.45	
Embellishment	Overall	0.44	0.51	0.07	4.67	0.48	0.83	0.08	8.88	higher
	Between		0.19	0.17	0.89		0.54	0.13	3.19	
	Within		0.48	-0.29	4.23		0.64	-1.43	6.27	

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TABLE 3
COMPARISON OF COMMUNICATION ATTRIBUTES IN CORPORATE DISCLOSURES PRE- AND POST-SOX (CONT.)

(d) Realism

			Pre-SOX (1993 through 2001)				**Post-SOX** (2004 through 2012)			**Change in Mean**
Variable		Mean	Std. Dev.	Min	Max	Mean	Std. Dev.	Min	Max	
Realism	***Overall***	***42.75***	***2.55***	***29.37***	***48.71***	***43.30***	***2.91***	***37.25***	***50.86***	higher
	Between		1.52	39.85	46.49		2.54	38.67	49.12	
	Within		2.06	30.98	48.77		1.48	37.24	50.15	
Familiarity	Overall	102.63	28.66	25.08	149.88	104.16	25.24	22.20	225.82	higher
	Between		22.99	41.25	126.97		22.26	49.88	137.11	
	Within		17.56	32.49	155.51		12.49	67.09	192.86	
Spatial Awareness	Overall	4.18	3.56	0.16	21.82	4.95	5.46	0.08	54.96	higher
	Between		2.44	0.84	11.31		3.34	0.89	16.50	
	Within		2.63	-3.02	16.38		4.36	-1.44	52.61	
Temporal Awareness	Overall	10.09	4.48	1.38	28.60	8.16	3.71	1.84	23.60	lower
	Between		2.63	4.22	16.99		2.73	3.87	14.58	
	Within		3.66	-1.33	23.62		2.56	0.83	20.46	
Present Concern	Overall	8.05	4.87	0.94	23.44	10.57	6.70	1.02	41.63	higher
	Between		3.35	3.07	15.42		5.83	2.62	30.97	
	Within		3.57	-3.95	22.60		3.45	-0.55	31.69	
Human Interest	Overall	1.81	3.37	0.00	31.20	6.69	8.32	0.00	32.61	higher
	Between		2.22	0.00	8.74		7.59	0.08	26.95	
	Within		2.57	-6.83	24.34		3.65	-15.20	20.11	
Concreteness	Overall	22.66	8.75	6.31	58.00	23.91	10.41	4.92	51.80	higher
	Between		5.30	13.75	32.69		8.91	10.51	40.18	
	Within		7.03	3.17	52.48		5.59	1.41	46.45	
Past Concern	Overall	2.02	1.59	0.01	11.39	2.72	2.52	0.07	13.40	higher
	Between		0.99	0.22	4.23		1.92	0.24	7.60	
	Within		1.26	-0.41	9.39		1.66	-2.17	9.82	
Complexity	Overall	5.04	0.55	3.30	7.68	5.07	0.60	2.94	6.48	higher
	Between		0.41	3.83	5.60		0.52	3.82	5.88	
	Within		0.37	3.62	7.12		0.31	4.11	6.66	

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TABLE 3
COMPARISON OF COMMUNICATION ATTRIBUTES IN CORPORATE DISCLOSURES PRE- AND POST-SOX (CONT.)

(e) Commonality

			Pre-SOX (1993 through 2001)				**Post-SOX** (2004 through 2012)				**Change in Mean**
Variable			Mean	Std. Dev.	Min	Max	Mean	Std. Dev.	Min	Max	
Commonality		***Overall***	***51.97***	***4.44***	***45.13***	***112.72***	***52.08***	***3.33***	***43.44***	***84.88***	higher
		Between		1.76	49.36	57.75		1.92	48.67	56.37	
		Within		4.08	43.56	106.94		2.75	45.14	81.98	
	Centrality	Overall	6.60	3.78	1.91	32.21	7.34	5.18	0.86	66.37	higher
		Between		1.86	3.17	10.65		3.08	2.47	16.36	
		Within		3.30	-1.44	28.16		4.19	-2.85	57.36	
	Cooperation	Overall	11.04	15.88	1.68	255.35	11.84	8.05	2.53	84.93	higher
		Between		5.71	3.27	36.14		4.34	6.15	22.39	
		Within		14.85	-19.07	230.24		6.82	-2.16	76.70	
	Rapport	Overall	1.11	1.11	0.00	6.78	1.21	1.04	0.00	6.30	higher
		Between		0.68	0.01	3.32		0.62	0.18	2.58	
		Within		0.89	-2.02	4.56		0.84	-1.01	5.92	
	Diversity	Overall	2.05	1.83	0.07	13.45	2.48	2.00	0.02	13.15	higher
		Between		1.02	0.32	4.98		1.72	0.36	7.80	
		Within		1.53	-1.08	11.70		1.07	-0.45	7.83	
	Exclusion	Overall	2.59	2.53	0.02	23.16	2.93	2.67	0.00	16.23	higher
		Between		1.40	0.71	5.94		1.93	0.28	8.71	
		Within		2.12	-2.30	19.81		1.87	-2.54	12.81	
	Liberation	Overall	0.76	1.22	0.00	10.40	0.74	1.18	0.00	11.98	lower
		Between		0.69	0.00	2.92		0.74	0.07	3.31	
		Within		1.02	-2.04	8.23		0.92	-1.71	9.41	

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TABLE 4
RESULTS OF PANEL DATA RANDOM EFFECT REGRESSION ANALYSIS

$$\text{Habermas' Norm}_{i,t} = \text{const} + b_i\text{SOX}_t \; [+ \textit{NetIncome}_{i,t} + \textit{Asset}_{i,t} + \sum_{n=1}^{7} Industry_{n,i} \;] + \varepsilon_{i,t}$$

where SOX_t is a dummy variable taking the value of 0 from 1993 through 2001 (pre-SOX), and the value of 1 in the years 2004 through 2012 (post-SOX); $Asset_{i,t}$ is the balance of total assets of Firm i as at the end of Year t; $NetIncome_{i,t}$ is amount of net income generated by Firm i during Year t; $\sum_{n=1}^{7} Industry_{n,i}$ is a series of dummy variables.

	Model I	**Model II**	**Model III**	**Model IV**
Independent Variable	Comprehensibility		Truthfulness	
SOX	0.804 (2.77***)	1.029 (3.27 ***)	4.938 (6.62***)	4.05(4.97***)
Net Income		0.035 (1.27)		.079(1.12)
Total Assets		-0.001(-2.20**)		.004(2.38**)
Industry 1		0.372(0.20)		10.672(1.16)
Industry 2		1.285(1.21)		11.730(2.30**)
Industry 3		-0.354(-0.25)		7.890(1.17)
Industry 4		1.962(1.41)		6.352(0.94)
Industry 5		2.107(1.11)		7.227(0.79)
Industry 6		-0.812(-0.83)		.818(.17)
Industry 7		1.757 (1.48)		9.919(1.74*)
Constant	40.191 (99.86***)	39.848(70.88***)	48.843 (29.02***)	44.24(17.00***)
Number of Obs	540	540	540	540
R^2 (overall)	0.0108	0.099	0.0393	0.1965
	Model V	**Model VI**	**Model VII**	**Model VIII**
Independent Variable	Sincerity		Legitimacy	
SOX	-0.387(-0.93)	-0.617(-1.39)	-0.253(-3.17***)	-0.222(-2.57***)
Net Income		-.006(-0.14)		-0.005(-0.72)
Total Assets		.001(1.51)		-.0001(-0.75)
Industry 1		.058(.03)		-0.133(-0.26)
Industry 2		.723(.69)		.085(0.30)
Industry 3		.452(.33)		.011(0.03)
Industry 4		-2.006(-1.47)		-.264(-0.70)
Industry 5		-2.994(-1.62)		-.212(-0.42)
Industry 6		-683(-0.59)		-.548(-2.09**)
Industry 7		-683(-0.59)		.185(0.58)
Constant	150.3989 (384.89 ***)	150.696 (259.34***)	-0.3756296 (-3.91***)	-.271 (-1.79*)
Number of Obs	540	540	540	540
R^2 (overall)	0.0015	0.0445	0.0153	0.0683

Note: z-scores are shown in parentheses next to the regression coefficients. Asterisks *, ** and *** indicate significance at 10%, 5% and 1% respectively.

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CONCLUSION

Habermas (1984, 1987) developed a theory in which various practical reasons were employed to establish four principles of effective communicative action. In accordance with this theory, effective communicators are expected to demonstrate comprehensibility, truthfulness, sincerity and legitimacy in their discourses. This study is an extension to Yuthas et al. (2002), with an attempt to further operationalize the Habermas' principles as applied to the business communication setting. I investigate the communication behavior of corporate management in the disclosure of their firms' operations using the four Habermas' principles. In addition, the impact of the Sarbanes-Oxley Act (in short, SOX) on management communication behavior is evaluated at the same time. In examining the MD&A sections of the annual reports from 1993 through 2012 (except 2002 and 2003) of 30 large companies in the financial sector using Diction 6, I find that SOX has a significant impact on management communication in their company disclosures with regard to all the Habermas' norms except sincerity. SOX raises comprehensibility and truthfulness but lowers legitimacy demonstrated by corporate management in their discussion and analysis of the firms' operations. The results are significant even after controlling for the profitability, size and industry within the financial sector of the firms.

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