The Big-4's influence on rules-based accounting standards

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Abstract

Purpose – This study aims to evaluate whether the Big-4's commenting efforts influence the characteristics of Financial Accounting Standards Board's (FASB's) Final_Standards using the content of their comment letters. Whether auditors lobby standard-setters to help their clients or to help themselves and whether they are successful are questions highly relevant to issues of auditor independence and audit effectiveness.

Design/methodology/approach – Based on components of Mergenthaler (2009), this study develops a rules-based continuum change score to measure how much more (less) rules-based a Final_Standard is compared to its exposure draft to evaluate the influence of the Big-4 on the FASB's standard-setting for 63 accounting standards.

Findings – The findings show that extensive comment letters and increased uncertainty language are associated with increases in the rules-based attributes included in Final_Standards. These results suggest the Big-4 prioritize a reduction in their own litigation risk over the possible preferences of their clients for less rigid standards. Moreover, the results are consistent with their comment letters influencing the FASB's decision to include more rules-based attributes in Final_Standards.

Originality/value – This study develops a potential proxy for audit risk by assessing the changes in the rules-based characteristics of proposed accounting standards and using the content of the comment letters to evaluate whether the Big-4 accounting firms may influence the FASB's Final_Standards. Overall, this study provides a unique perspective on the influence of constituents on the FASB's standard-setting.

Keywords Auditor lobbying, Accounting standard-setting, Rules-based, Principles-based, FASB

Paper type Research paper

1. Introduction

The Financial Accounting Standards Board's (FASB) primary mission is to create and enhance the accounting and reporting standards for financial statements, specifically, to provide information to users that is useful in making investment and other decisions (FASB, 2013). In addition to the users of financial statements, the FASB recognizes that its other constituents (preparers, accounting firms, trade organizations and others) are subject to the costs and benefits of providing financial reporting information. The FASB acknowledges the importance in demonstrating its consideration of constituents' comment letters when reaching its conclusions on final accounting standards. Input from its constituents is "critical to producing and strengthening US accounting standards that are essential to the vitality of our capital markets, which depend on robust and rigorous accounting standards" (Financial Accounting Foundation, 2003).

Through its due process, the FASB encourages public participation and contends that its deliberations on constituents' feedback are objective. However, there has been a decline in the absolute and relative participation in the FASB's comment letter due process among preparers and accounting firms when compared to the participation on the first 100 FASB

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statements documented by Tandy and Wilburn (1992), Lysak (2016). This decline might be taken as an indication that participants do not believe that their comments on Exposure Drafts ("ED"s) have the ability to influence the process, and consequently, believe that sending a comment letter is an exercise in futility. Alternately, the decline might simply be attributed to the fact that individuals allow the Big-4 to represent them; as long as someone like-minded makes the comment, there is no need for direct participation. This paper provides evidence that lobbying efforts by constituents is related to changes in Final_Standards.

Early research focuses on the influence and success of the various constituents' lobbying efforts. However, the results in this area are varied. With diverging results on constituent influence in the accounting standard-setting process, additional research is warranted. One of the limitations in this setting is that a majority of the research was performed in the 1980s/1990s; recent research has been limited. Furthermore, research in this area is generally case studies of one or a small number of EDs for accounting standards. This is largely due to the manually intensive process associated with content analysis. Early research uses a simplified approach to manually code the available due process and comment letter documents. With automated tools and information readily available on the FASB's website, more in-depth analysis of the text in comment letters can be processed and investigated to evaluate influence by constituents in the FASB's process.

Given the prior literature, this research seeks to identify whether one key constituent, Big-4 accounting firms ("Big-4"), influences the FASB's standard-setting process. Accounting firms are a key stakeholder in the accounting standard-setting process. The Big-4 are active participants in the standard-setting process and generally provide a comment letter for each ED [1]. This research focuses on the extent of the Big-4's lobbying efforts and the influence their feedback has on the FASB's Final_Standards. Specifically, this research poses the question: do the Big-4's lobbying efforts influence whether the FASB's Final_Standard is more principles-based or rules-based? Using textual analysis, a broader analysis of comments letters is conducted to determine whether the Big-4 influences the FAS's standard-setting process for Statements of Financial Accounting Standards (FASs) and Accounting Standards Updates (ASUs) issued during a recent period (2002 – September 2015).

Prior literature (Watts and Zimmerman, 1986; Puro, 1984; Meier *et al.*, 1993; Allen *et al.*, 2018) delves into the three reasons that accounting firms may choose to participate in the standard-setting process:

(1) to improve financial reporting because it is in the best interest of the profession;

(2) to achieve their own self-interest (to increase audit wealth and/or reduce audit risk); and

(3) to lobby on behalf of their clients (increase or maintain audit wealth) (Gipper *et al.*, 2013).

The Big-4's desire to maintain a low level of audit risk may result in a preference for well-specified rules to mitigate this risk (Miller and Redding, 1988; Buckmaster, 1988). To assess this premise, the Big-4's tone and comment letter length were examined to determine if there is an association with how much more rules-based a proposed standard becomes once it is finalized. As a proxy for audit risk, a rules-based continuum (RBC) "change score" [based on the RBC score used by Mergenthaler (2009)] was developed to measure how much more (or less) rules-based a Final_Standard is compared to the ED. Then, Loughran and McDonald's (2011) sentiment dictionaries were used to determine the negative, litigious and uncertainty

language as a measure of the tone of the comment letters. Negative tone is used as a proxy for support/opposition for a proposed standard. Uncertainty and litigious tones are used to express concerns with audit risk/litigation risk. The length of the Big-4's comment letters were used to measure the extent of the Big-4's lobbying efforts. The association between the change in RBC score and the various measures of tone and extent were tested as a means to evaluate influence by the Big-4 in the final outcome of the rules-based attributes of the Final_Standards issued by the FASB.

This research finds that as the uncertainty language expressed by the Big-4 increases, the changes in rules-based attributes (that are ultimately reflected by the FASB in the Final_Standard) also increases. This indicates that the Big-4's uncertainty tone may influence the FASB's changes in the rules-based attributes from the ED to the Final_Standard. This paper also finds that when the length of the comment letters increases, the changes in rules-based attributes increase. This suggests that the Big-4 may influence the FASB's decision to include more rules-based attributes in the Final_Standards (as compared to the initial proposed standard) by providing more extensive feedback. However, the level of opposition for a standard, as measured by negative tone and risk of litigation, as measured by litigious tone, do not yield a significant result. This suggests that expressing opposition or concern for litigation risk may not influence whether the FASB includes additional rules-based criteria within the Final_Standard.

Given the varying results in the early research on whether the FASB's constituents influence the standard-setting process, this paper contributes to the existing literature in several ways. First, through textual analysis, this research uses the content of the comment letters to evaluate whether the Big-4 may influence the FASB's Final_Standards. Textual analysis and machine-processing allow for the tone of the comment letters to be extracted and analyzed to determine the potential effect the Big-4's comment letters may have on the overall characteristics of the Final_Standards. Specifically, increased uncertainty language and lengthier comment letters from the Big-4 may lead to more rules-based standards, and, in turn, decrease the ambiguity in financial reporting.

Second, prior literature on lobbying has demonstrated that lobbying efforts are motivated by self-interest (Watts and Zimmerman, 1986; Puro, 1984; Meier *et al.*, 1993; Hill *et al.*, 2002; Allen *et al.*, 2018). In this research setting, evidence supports this notion in that the Big-4's uncertainty tone and lengthy comment letters may influence the increased rules-based characteristics in the FASB's Final_Standards, thus potentially reducing their audit and litigation risk. There is limited research on the notion of audit risk and the impact that the perceived audit risk has on the lobbying position of the audit firm. This research develops a potential proxy for audit risk by assessing the changes in the rules-based characteristics of proposed accounting standards. These results provide evidence indicating that the content (specifically, the uncertainty language and the length) of the Big-4's comment letters may influence the rules-based characteristics of the Final_Standard issued.

Overall, this research provides academics, standard-setters, accounting firms, preparers and users of financial statements with further research on the potential influence that a key stakeholder has on the standard-setting process for financial reporting. Evidence from this research suggests that auditors, specifically the Big-4, affect the ultimate rules-based characteristics included in the Final_Standards, which minimizes the potential audit and litigation risk that may ensue when management has flexibility in applying less rules-based standards.

The remainder of this paper proceeds as follows: background and prior literature; hypothesis development; data and research methodology; results; and conclusion.

2. Background and prior literature

Prior literature studies the motivations for accounting firms to participate in the FASB's standard-setting process. In Watts and Zimmerman (1982), they examine the relationship between accounting firms and their clients and find that the accounting firms' position may lobby for a client preference or its own self-interest (i.e. to increase their wealth). Watts and Zimmerman (1982) find that the accounting firms' position is associated with its clients and the accounting firm is likely to oppose standards that reduce a clients' demand for audit services. This suggests that accounting firms lobby to increase their audit wealth. Puro (1984) finds results similar to Watts and Zimmerman (1982) in that accounting firms will lobby in their own self-interest (when new disclosure is required by a proposed standard) and the interest of their clients (when a proposed standard requires standardization in accounting treatment). Meier *et al.* (1993) use the Watts and Zimmerman (1982) model and introduce a variable for audit risk, which is measured as having higher audit risk if the standard allows for non-traditional accounting or lower audit risk if it requires additional disclosure. Their findings indicate that accounting firms will lobby for client preference; however, accounting firms also lobby for their own self-interest in instances when additional audit risk is expected as a result of the proposed standard, thus indicating that auditors are risk averse.

The recent literature (Allen *et al.*, 2018) evaluates the Big N accounting firms' changing motivations for lobbying over a period of time (1973-2006). They evaluate whether Big-N's motivations to participate in the accounting standard-setting process is influenced by the desire to manage litigation and regulation costs (thus, limiting audit risk) or to serve clients' preference for flexibility in generally accepted accounting principles ("GAAP") (Watts and Zimmerman, 1986; Zeff, 2003a, 2003b; Folsom *et al.*, 2017). They find that, in periods where there is increased litigation and Securities and Exchange Commission (SEC) enforcements, Big-N accounting firms are likely to express concerns with decreased reliability in financial reporting via their comment letters. However, they find no evidence to suggest that Big-N firms lobbying efforts impart their clients' preferences.

In addition to studying the motivations of stakeholders' participation in the lobbying process, the existing literature also evaluates whether these various stakeholders' lobbying position influences the FASB in the standard-setting process. Similar to the above, this research is limited and consists of small case studies. In Haring (1979), his evidence indicates that, of the FASB's constituent groups, accounting firms' and sponsoring organizations' (i.e. the American Institute of Certified Public Accountants, state accounting societies, etc.) preferences influence the Final_Standards implemented by the FASB. He also finds that the FASB's likelihood to change a proposed rule for a standard is inversely associated with the business firms' preferences. Contrary to Haring (1979), Brown (1981) finds that over a period of time the actions taken by the FASB are not aligned with the preferences of any stakeholders. His results, which are based on eight EDs, indicate that the FASB may consider the feedback provided by the various stakeholders, but are not consistently influenced by one stakeholders' preferences when reaching its decision (Brown, 1981). Buckmaster *et al.* (1994) investigates whether lobbying efforts are influenced by the types of proposed requirements, namely, standardization of accounting methods, disclosure of specific data or specific technical aspects of a proposed rule (i.e. effective date, definition and scope) for seven EDs. Buckmaster *et al.* (1994) argues that Haring (1979) focuses on preferences versus whether an adversarial position is taken regarding the proposed standard. Buckmaster *et al.* (1994) suggests that large accounting firms usually prefer more, detailed regulation but preparers of financial statements generally prefer less guidance. Given that the FASB "must regulate to justify its existence," the FASB is therefore more

likely to respond to auditor preferences surrounding implementation (Buckmaster *et al.*, 1994).

Given these conflicting results from prior literature, this research expands the existing literature by evaluating whether the Big-4 influence the outcome of the Final_Standard using the textual information contained in the Big-4's comment letters submitted to the FASB. It examines whether the Big-4's tone and comment letter length are associated with how much more rules-based a proposed standard becomes once it is finalized. This is based on the premise that accounting firms prefer well-specified rules to mitigate audit risk (Miller and Redding, 1988; Buckmaster, 1988). In the next sections, this notion and a measure based on Mergenthaler's (2009) RBC score is developed to identify how much more (or less) rules-based a Final_Standard is compared to an ED.

3. Hypothesis development

Accounting firms may choose to participate in the standard-setting process, namely, to improve financial reporting because it is in the best interest of the profession, to achieve their own self-interest (to increase audit wealth and/or reduce audit risk) and to lobby on behalf of their clients (increase or maintain audit wealth) (Gipper *et al.*, 2013). Accounting firms strive to provide quality client service to ensure the retention of existing clientele and to attract new clientele to increase or maintain their overall profitability. However, it is also imperative that accounting firms focus on minimizing and reducing their own audit risk and litigation risk. Therefore, accounting firms may prefer well-specified rules that minimize judgment (for both management and auditors) ultimately reducing their audit risk (Miller and Redding, 1988; Buckmaster, 1988).

Given the above premise, this research uses the content of the Big-4's comment letters on proposed standards (as measured by sentiment/tone and total number of words) to measure the association with changes in the rules-based characteristics from ED to Final_Standard. Based on Mergenthaler (2009), this research develops a change score to measure changes in the rules-based characteristics. This is used as a proxy for audit risk (i.e. more rules-based standards reduce audit risk). The SEC identified four attributes indicative of rules-based standards (bright-lines, scope exceptions, high level of detail and implementation guidance) as part of its study (SEC, 2003) for convergence of US GAAP and International Financial Reporting Standards ("IFRS") [2]. The SEC's view is that standard-setting should be principles-based or "objective-oriented based" (SEC, 2003), avoiding the use of "bright-line" tests and minimizing exceptions, which are prevalent in rules-based standards. Additionally, this approach would provide an overall objective and ensure there is "sufficient detail and structure so that the standard can be operationalized and applied on a consistent basis" (SEC, 2003). The SEC's study also provides examples of what they define as rules-based [3], principles-based [4] (or objective-based) and principles only [5].

Using the SEC's study, Mergenthaler (2009) develops an RBC score to evaluate the extent to which a Final_Standard contains certain attributes that are more indicative of rules-based standards [6]. Donelson *et al.* (2012) use the Mergenthaler (2009) RBC score to test whether rules-based versus principles-based characteristics influence accounting firms' potential litigation risk in restatement cases. They develop two competing theories, namely, the "protection theory" and the "roadmap theory." These theories highlight how accounting firms may be predisposed to litigation in restatements depending on the rules-based or principles-based nature of the accounting standards misstated. Specifically, the "protection theory" suggests that rules-based standards decrease the likelihood of lawsuits and an unfavorable outcome in a lawsuit in restatement cases unlike principles-based standards. Principles-based standards provide an opportunity for auditor judgment to be questioned in

litigation and to find potential fault in the judgment made by an auditor (Donelson *et al.*, 2012). Conversely, the "roadmap theory" proposes that rules-based standards increase the likelihood of a lawsuit and an unfavorable outcome in litigation as rules-based standards provide a direct "roadmap" to the misapplication of the standards, and thus, a more compelling litigation claim can be made (Donelson *et al.*, 2012). Instead, principles-based standards provide flexibility and allow for an explanation of the judgment and decision made to arrive at the accounting applied by an accounting firms' client (Donelson *et al.*, 2012). Their findings suggest that violations of rules-based standards are less likely to result in a lawsuit filing, thus supporting the protection theory (Donelson *et al.*, 2012). On the contrary, in another study from the preparers' perspective, Jamal and Tan (2010) find that standards that are more principles-based standards are more likely to result in improved financial reporting quality only when there is shift in the mindset of the auditors toward being more principles-based. They use a lease accounting example to demonstrate how rules-based standards do not decrease managements' tendency to structure transactions to report matters off-balance sheet, thus suggesting that rules-based standards do not enhance financial reporting quality (Jamal and Tan, 2010). Although the results are conflicting, evidence still suggests that auditors prefer to reduce their overall risk and may prefer rules-based standards to mitigate this risk.

Given the assumption that Big-4 prefer more rules-based standards, the length of the Big-4's comment letters are presumed to be associated changes made by the FASB to include more rules-based characteristics in the Final_Standard. More extensive submissions are likely to contain commentary requesting clarification or suggesting changes for the FASB to consider when finalizing the proposed standard. Given this, *H1* states:

H1. Increases in the rules-based attributes from the ED to the Final_Standard are positively associated to increases in the length of the Big-4 comment letters.

H1 proposes that longer comment letters are positively associated with an increase in the rules-based attributes given the need for more specific or clarifying information.

Next, the second hypothesis suggests that the various measures of tone (negative, uncertainty and litigious) in Big-4 comment letters are positively associated with an increase in the rules-based attributes from the ED to Final_Standard as follows:

H2a. Increases in the rules-based attributes from the ED to the Final_Standard are positively associated to increases in the negative language included in the Big-4 comment letters.

H2b. Increases in the rules-based attributes from the ED to the Final_Standard are positively associated to increases in the litigious language included in the Big-4 comment letters.

H2c. Increases in the rules-based attributes from the ED to the Final_Standard are positively associated to increases in the uncertainty language included in the Big-4 comment letters.

The negative tone measure of the comment letters is used as a proxy for the support of a proposed standard. Higher negative language included in the comment letter suggests more opposition (less support) for a proposed standard. *H2a* suggests that an increase in negative tone (or increase in opposition for a proposed standard) is associated with an increase in the rules-based attributes in the Final_Standard. If the Big-4 prefer rules-based standards, there may be a more negative tone in comment letter responses for EDs that are more

principles-based. This may ultimately influence the FASB to include more prescriptive (rules-based) standards.

In addition, the uncertainty and litigious tones of the comment letters are used as a proxy for concern with audit risk and litigation risk. Given the notion that auditors prefer well-specified rules to mitigate audit risk, an increase in the uncertainty or litigious language included in the comment letters suggests an increased concern for audit risk and litigation risk. The hypotheses *H2b* and *H2c* suggests that higher uncertainty and litigious language are associated with an increase in the rules-based attributes in the Final_Standard. Overall, *H2a-c* imply that each of these measures of the Big-4's lobbying efforts are associated with the changes made by the FASB to increase the rules-based attributes in the Final_Standard as compared to the ED.

The tone measures (*percneg_tone*, *perclitig_tone* and *percuncertain_tone*/ p*ercuncertain2_tone*) and *wordcount (*as described in Section 4) are used as the independent variables. For the dependent variable, the measure *change_RBCscore* (based on Mergenthaler, 2009) was developed and is described below.

4. Data collection and research methodology
To measure the independent variables, this paper uses textual analysis to extract the word count and tone from the Big-4's comment letters. Textual analysis has become a compelling tool for accounting and finance research. Given the amount of qualitative disclosure that is associated with financial reporting and the power of computers to analyze text systematically, textual analysis allows researchers to convert qualitative information to quantitative information and apply statistical methods to draw inferences regarding the content of the text. It is a means to extract word counts related to sentiment and broad topics and to identify similarity, readability and understandability of documents. With the ability to use machine-processing, textual analysis has allowed for large scale empirical analysis of various forms of text, including public companies' SEC filings (i.e. Form 10-K/10-Q and earnings releases), news articles, transcripts from earnings conference calls and even social media in finance and accounting research.

In this setting, there has been little, if any, large scale analysis of the lobbying influence on accounting standards using automated textual analysis on the comment letters submitted by constituents to the FASB (with the exception of Allen *et al.*, 2018). Furthermore, limited studies exist using sentiment/tone to analyze the text of comment letters and its association to constituents to influence the standard-setting process. Tone or sentiment language is a way to further investigate whether the lobbying efforts of the constituents (and specifically the Big-4 in this research) influence the process. The methodology is described below for the extraction of the total word count, as well as the negative, litigious and uncertainty tones from comment letters submitted by the Big-4.

4.1 Sample selection
As of September 2015, approximately 270 EDs are listed on the FASB website, which include EDs on the various types of FASB standards. However, certain EDs were excluded from the sample. First, comment letters submitted for Emerging Issues Task Force (EITF) abstracts (48 EDs) were eliminated given the Big-4 are members of the EITF. The Big-4's feedback is considered as part of developing this type of guidance and they, therefore, do not provide a comment letter. For the period of time pre-codification, the sample in this study does not include FASB Staff Positions (92 EDs), FASB Interpretations (5 EDs) or FAS 133 Derivatives Implementation Group (DIG) Issues (4 EDs), which all provide interpretative

and clarifying guidance on existing accounting issues [7]. Comment letters from EDs were also excluded from this study, if Final_Standards were not yet finalized and issued by the FASB (35 EDs). As a result, the data focuses on the comment letters submitted for EDs that ultimately resulted in a FAS (pre-codification) or an ASU (post-codification). Any comment letters provided for discussion papers/preliminary views (19 EDs), concept statements (2 EDs) or that related to the conceptual framework/IFRS plan (1 ED) were eliminated as these matters are generally not related to a proposed standard as the intent is to gather information prior to compiling an ED. If data was incomplete or missing from the FASB website (3 EDs), it was also eliminated from the sample. Finally, there were two rounds of comments for the proposed standard for revenue recognition and these responses were combined (1 ED). The resulting sample consisted of 63 FASs and ASUs, yielding 250 comment letters that have been submitted by the Big-4 during the time period January 2002 through September 2015 (the date through which information was available online during data collection). Table 1 provides a reconciliation of the FASs and ASUs.

Table 2 provides a detailed listing of the specific ASUs and FASs included in this study. Each standard can be referenced by the FASB's codification topic *(codif_topic)* and, for this study, has been combined as follows: Broad Transactions/Industry (*codif_topic*= 1), Assets (*codif_topic* = 2), Revenues/Expenses (*codif_topic* = 3), General Principles/Master Glossary (*codif_topic* = 4) and Presentation (*codif_topic* = 5). The codification topics were combined based on the nature of the topic. For example, Assets, Liabilities and Equity are part of the balance sheet and Revenue and Expense topics are income statement-related; therefore, these topics were combined, respectively, based on the financial statement type. Broad Transactions and Industry relate to specific accounting topics that are not limited to an area on the balance sheet or income statement. Finally, the Master Glossary and General Principles are general topics, which relate to terminology that is used as opposed to guidance on a specific transaction types or balance sheet/income statement account.

Total Exposure Drafts available online (as of September 2015)	273
ASUs that are consensus of EITF/EITF	−48
FSP	−92
FIN	−5
DIG Issues	−4
Invitation to Comment, Discussion Papers, Preliminary Views	−19
Concept statements	−2
IASB- Workplan for IFRS: Conceptual Framework	−1
Comment letters not available on FASB website (FAS 145/147)	−2
Remove FAS 123 R (incomplete comment letter listing)	−1
Two comment periods for revenue recognition standard (ASU 2014–09)	−1
Closed for comment/exposure drafts not finalized issued by the FASB	−35
Total sample size	*63*

Notes: The FASB provides a listing of the EDs that have been issued beginning in 2002 through September 2015. The above reconciliation provides the items excluded from the ultimate sample used in this research. For the period of time pre-codification, the sample does not include EITFs, FSPs, FINs, FASB Technical Bulletins (FTBs) or FAS 133 DIG Issues, which all provide interpretative and clarifying guidance on existing accounting issues. With the implementation of the codification, the FASB no longer distinguishes between the various forms of guidance, except for ASUs that are issued as a consensus of the EITF. All guidance previously issued (i.e. EITFs, FSPs, FINs, FTBs and DIG Issues) was superseded and codified in 2009

Table 1.
Reconciliation of sample selection

	Statement	Codification topic (codif_topic)	Codification subtopic	RBC_EDscore	change_RBCscore
Substantive changes (type_standard = 1)					
1	asu2011-04	Broad transactions (1)	Fair value measurement	4	−2
2	asu2011-05	Presentation (5)	Comprehensive income	1	2
3	asu2011-11	Presentation	Balance sheet	2	2
4	asu2012-02	Assets (2)	Intangibles- goodwill and other	2	0
5	asu2013-07	Presentation (5)	Presentation of financial statements	1	0
6	asu2014–08	Presentation (5)	Presentation of financial statements	2	4
7	asu2014-09a	Revenue (3)	Revenue recognition	4	3
8	asu2014-11	Broad transactions (1)	Transfers and servicing	3	2
9	asu2014-15	Presentation (5)	Presentation of financial statements	2	−1
10	asu2015-01	Presentation (5)	Income statement	0	2
11	asu2015-11	Assets (2)	Inventory	1	1
12	fas141r	Broad transactions (1)	Business combinations	3	−1
13	fas151	Assets (2)	Inventory	0	0
14	fas153	Broad transactions (1)	Non-monetary transactions	1	0
15	fas154	Presentation (5)	Accounting changes and corrections	1	3
16	fas157	Broad transactions (1)	Fair value measurement	3	2
17	fas160	Broad transactions (1)	Consolidation	3	1
18	fas161	Broad transactions (1)	Derivatives and hedging	1	1
Amendments (type_standard = 2)					
1	asu2009-01	General principles (4)	GAAP	1	0
2	asu2010-02	Broad transactions (1)	Consolidation	1	1
3	asu2010-06	Broad transactions (1)	Fair value measurement	2	2
4	asu2010-08	Master glossary (4)	Technical corrections	0	2
5	asu2010-09	Broad transactions (1)	Subsequent events	0	0
6	asu2010-11	Broad transactions (1)	Derivatives and hedging	2	2
7	asu2011-03	Broad transactions (1)	Transfers and servicing	0	0
8	asu2011-08	Assets (2)	Intangibles- goodwill and other	2	1
9	asu2011-09	Expenses (3)	Compensation	1	1
10	asu2011-12	Presentation (5)	Comprehensive income	1	0
11	asu2012_04	Master glossary (4)	Technical corrections	2	−1
12	asu2013-01	Presentation (5)	Balance sheet	0	2
13	asu2013-02	Presentation (5)	Comprehensive income	2	1
14	asu2013-12	Master glossary (4)	Definition	1	0
15	asu2014-06	Master glossary (4)	Technical corrections	1	0
16	asu2014-10	Industry (1)	Development stage	0	2
17	asu2015-03	Broad transactions (1)	Interest	1	0
18	asu2015-04	Expenses (3)	Compensation	0	2
19	asu2015-14	Revenue (3)	Revenue from contracts with customers	0	0
20	fas132r	Expenses (3)	Compensation	3	0
21	fas148	Expenses (3)	Compensation	1	1
					(*continued*)

Table 2.
Categorization of
RBC_EDscore and
change_RBCscore by
statement

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	Statement	Codification topic (codif_topic)	Codification subtopic	RBC_EDscore	change_RBCscore
22	fas149	Broad transactions (1)	Derivatives and hedging	1	0
23	fas155	Broad transactions (1)	Derivatives and hedging/ Transfers and servicing	2	1
24	fas156	Broad transactions (1)	Transfers and servicing	1	1
25	fas158	Expenses (3)	Compensation	3	1
26	fas159	Broad transactions (1)	Financial instruments	1	3
27	fas162	General principles (4)	GAAP	2	0
28	fas165	Broad transactions (1)	Subsequent events	1	1
29	fas166	Broad transactions (1)	Transfers and servicing	1	1
30	fas167	Broad transactions (1)	Consolidation	3	2
Industry-related (type_standard = 3)					
1	asu2010-10	Broad transactions (1)	Consolidation	1	1
2	asu2010-20	Assets (2)	Receivables	2	3
3	asu2011-01	Assets (2)	Receivables	0	0
4	asu2011-02	Assets (2)	Receivables	1	0
5	asu2013-03	Broad transactions (1)	Financial instruments	1	0
6	asu2013-08	Industry (1)	Financial services	1	−1
7	asu2013-09	Broad transactions (1)	Fair value measurement	0	1
8	asu2014-02	Assets (2)	Intangibles- goodwill and other	3	1
9	asu2014-03	Broad transactions (1)	Derivatives and hedging	2	−1
10	asu2014-07	Broad transactions (1)	Consolidation	2	2
11	asu2014-18	Broad transactions (1)	Business combinations	2	−1
12	asu2015-05	Assets (2)	Intangibles- goodwill and other	0	0
13	fas152	Assets/industry (2)	Property, plant and equipment/ Real estate- retail land	1	0
14	fas163	Industry (1)	Financial services	2	1
15	fas164	Assets (2)	Intangibles- goodwill and other	3	2

Table 2.

Notes: The above table provides the RBC_EDscore and the *change_RBCscore* for the proposed standards included in the sample. In addition, each standard was categorized as either a substantive change, amendments or industry-related changes to the existing standards. In addition, the table also provides the codif_topic: 1= Broad Transactions/Industry, 2= Assets, 3= Revenue/Expenses, 4= General Principles/ Master Glossary and 5= Presentation

Each standard in the sample is also categorized as either a substantive change, an amendment or industry-specific based on the following:

- Substantive Change: Standards that did not previously exist or are significantly changed by the standard issued. In addition, the FASB indicates that when an ED's comment period is longer than two months, then there is usually a significant or comprehensive change to the guidance (FASB, 2013). Therefore, any proposed standards that have a comment period greater than two months is categorized as "substantive."

- Amendment: Standards that amend, clarify, interpret or supersede a portion an existing standard. In addition, the FASB indicates that an ED with a comment period of greater than 25 days are for additional application guidance, interpretation

or changes to existing guidance. Any ED with a comment period of less than 25 days is for proposed standards that are minor changes or amendments (FASB, 2013). Any proposed standards that have a comment period of less than 60 days are categorized as "amendment." Any standard that are "technical corrections" in the "master glossary" are also categorized as amendments regardless of the number of days in the proposed standards comment period.

- Industry-Related: Standards that pertain to a specific industry or specialized accounting for a group, i.e. governmental entities or not-for-profit. Any ED that is industry-specific will be classified as such regardless of the length of the comment period. Also, standards that are specific to non-public entities are also classified as industry.

Table 2 also shows the *type_standard and codif_topic* for each ED. The resulting sample is comprising 18 substantive changes (28.57%), 30 amendments (47.62%) and 15 industry-specific standards (23.81%). There are also 29 standards for Broad Transactions/Industry (46.03%), 11 Assets (17.46%), 7 Revenues/Expenses (11.11%), 6 General Principles/Master Glossary (9.53%) and 10 Presentation (15.87%). In addition, Table 2 also shows the measurement of the *RBC_EDscore* and the dependent variable, *change_RBCscore*, which is discussed further in the next section.

4.2 Measurement of the dependent variable
For each ASU and FAS in the sample listed in Table 2, the *change_RBCscore* was developed to evaluate the Big-4's influence in the standard-setting process via submission of a comment letter. The *change_RBCscore* measures whether the Final_Standard is more (less) rules-based as compared to the ED. The *change_RBCscore* is a proxy for audit risk; an increase in rules-based characteristics represents a decrease in audit risk based on the conjecture that audit firms prefer rules-based standards.

To develop the *change_RBCscore*, this research leverages the methodology used by Mergenthaler (2009) to compile a measure of the change in the rules-based characteristics from the proposed standard (ED) to the Final_Standard. First, the rules-based attributes were measured in each ED (*RBC_EDscore)* and Final_Standard using a modified approach to Mergenthaler's (2009) RBC score (as referenced in Table 3 and described below). Then, each rules-based attribute was compared to determine how much more (less) rules-based the Final_Standard has become to derive a change in RBC score (*change_RBCscore*). The following describes the criteria used by Mergenthaler (2009) and how his approach was used to develop the measurement of the *change_RBCscore*:

- Bright-line threshold: Mergenthaler (2009) defines a bright-line threshold as "a numeric threshold that delineates, which of two alternate accounting treatments is appropriate. Bright-lines are identified using key words, namely, "criteri," "condition," "provision," "require," "percent" and "all of the following" (except when used in terms of a list of disclosure required). Each paragraph surrounding each key word or phrase is read to confirm the presence of a bright-line threshold. Finally, the total number of bright-line thresholds in each standard is recorded." Mergenthaler's bright-line threshold is a numerical threshold. For the *change_RBCscore* measure, non-numeric wording (i.e. "if all the following conditions are met") was included for those circumstances that indicate that all of a list of criteria must be met for the application of a specific rule. Using these criteria, the number of "bright-line" thresholds were counted in both the ED and Final_Standard. The difference in the number of bright-line thresholds in the Final_Standard as compared to the ED was

Rules-based attributes	Criteria	Score
Bright-line thresholds Evaluate the context of the guidance to see if a bright line threshold exists	Word search of the following: criteri, condition, provision, require, percent	Score "1" if bright-line thresholds exist, 0 otherwise
Scope exceptions: Evaluate the context of the guidance to see if a scope exception exists	Word search of the following: not subject, not consider, exclu, exempt, except, Scope, does not apply	Score "1" if scope exception exist, "0" otherwise
Detail Evaluate the number of words and those within the highest quartile represent "high-level of details"	Number of words	Score "1" if in highest quartile, "0" otherwise
Implementation guidance *Different from Mergenthaler (2009)	Count of implementation guidance included in document	Score "1" if implementation guidance exists, "0" otherwise

Table 3.
Summary for the determination of rules-based continuum score

Notes: This table provides a summary of the criteria used to measure the rules-based attributes included in the EDs and the Final_Standards. Leveraging Mergenthaler (2009), the change in the rules-based attributes bright-line thresholds, scope exceptions, high-level of detail and implementation guidance was measured to generate the *change_RBCscore*

calculated. If there is an increase, the bright line threshold attribute was scored as "1," no change as "0" and a decrease as "−1."

- Scope Exceptions: For scope exceptions, Mergenthaler (2009) "search[es] each standard for the following key words, namely, "not subject," "not consider," "exclu," "exempt," "except," "scope" and "does (do) not apply." [He] then read the paragraphs surrounding these words to identify scope and legacy exceptions. [He] count[s] the number of scope and legacy exceptions in each standard to determine the total number of exceptions in each standard" (Mergenthaler, 2009). This criterion was used to determine the number of "scope exceptions" in both the ED and the Final_Standard. Next, the difference in the number of scope exceptions in the Final_Standard as compared to the ED was calculated. If there is an increase, the scope exceptions characteristic was scored as "1," no change as "0" and a decrease as "−1."

- High-level of detail: Mergenthaler (2009) "identif[ies] standards that contain a high level of detail by performing the following procedure: counting the number of words in each standard; ranking the standards by the total number of words in each standard; and classifying those standards in the upper detail decile as "high level of detail" standards. [He] exclude[s] the "background information" and the "basis for conclusions" as these sections do not prescribe how to account for the transaction. However, the results are not changed when [he] include[s] these sections in the word count." For the change measure for level of detail, this research includes the total number of words for the entire ED and the entire Final_Standard. The total number of words was determined in each document using readableio.com, which converts the portable document format (PDF) files to a readable format and calculates the total number of words. The background info or basis for conclusions from the total word count were not excluded. The difference in the total number of words from the

ED to the Final_Standard were calculated and divided by the ED's total word count to come up with a percentage change in the word count from the ED to Final_Standard. Next, similar to Mergenthaler (2009), quartiles were established based on the change in the level of detail from the ED to the Final_Standard. Standards in Quartile 4 or the top quartile, (i.e. with the greatest changes in the level of detail or word count) were scored as "1." All other changes are classified as zero.

- Large amounts of implementation guidance: The evaluation of this characteristic by Mergenthaler is ex-post (as his RBC score is measured using the Final_Standard), whereby he identifies clarifying or implementation guidance that is issued such as EITFs, Statements of Position and FASB Staff Positions. Given that this research evaluates the implementation guidance from the proposed standard (ED) to Final_Standard, it is not possible to use the same measure as Mergenthaler as his measure evaluates the amount of implementation guidance issued subsequent to the Final_Standard. For change_RBCscore, the implementation guidance within the standards was evaluated for increases or decreases from the ED to Final_Standard. The specific examples/scenarios included in both the ED and Final_Standard were counted, as well as examples of tables for disclosure requirements and flowcharts/decision trees. From this information, it was then determined if there is a change in the level of implementation guidance given the count of examples/tables in the ED compared to the Final_Standard. If there is an increase, the implementation guidance characteristics was scored as "1," no change as "0" and decreases as "-1."

- Overall Scoring (change_RBCscore): The change_RBCscore is calculated based on the sum of the changes in the four attributes (bright-lines, scope exceptions, high level of detail and implementation guidance) of rules-based standards. The change_RBCscore ranges from -4 to 4.

  - A change_RBCscore = 0 indicates no change in the Final_Standards' rules-based versus principles-based characteristics from the ED to the Final_Standard.
  - A change_RBCscore > 0 indicates the Final_Standard contains more rules-based characteristics from ED to Final_Standard.
  - A change_RBCscore < 0 indicates the Final_Standard contains more principles-based characteristics from ED to Final_Standard.

Table 4 summarizes the calculation of the change_RBCscore. For each Final_Standard in the sample, the number of bright lines, scope exceptions and implementation guidance in the ED was counted and compared to the count included in the Final_Standard. For example, the ED for ASU 2014–08 *Presentation of Financial Statements (Topic 205) and Property, Plant, and Equipment (Topic 360): Reporting Discontinued Operations and Disclosures of Disposals of Components of an Entity (ASU 2014-08)* was searched using the criteria established above and find that there are no scope exceptions in the ED. Using the same criteria, the Final_Standard was searched and two scope exceptions were identified. This resulted in an increase in the number of scope exceptions. The increase in the scope exception characteristic was scored "1," which indicates that there is an increase in rules-based characteristics in the scope exception characteristic. This was completed for each of the other attributes: bright-lines increase from one to two (score = "1"), a change in the quartiles for the level of detail (score = "1") and an increase in the tables, examples and illustrations (implementation guidance) from four to eight (score = "1"). The score for each rules-based attribute was tallied and derived for an overall change_RBCscore, which is "4" for ASU

2014–08. Table 5 provides an illustration of the calculation of the *change_RBCscore* for ASU 2014–08. The *change_RBCscore* was compiled for each standard and is as listed in Table 2.

Table 6 provides the number of comment letters for each *change_RBCscore*. The *change_RBCscore* = 0 and 1 have the largest sample of comment letters with 78 and 66 comment letters, respectively. The change_RBCscore 4 and −2 (which also represent the high and low end of the continuum) have the smallest sample of comments letters or four comment letters.

Table 7 provides a transition matrix for each *RBC_EDscore* and the *change_RBCscore*. More than half of the comment letters are associated with standards (58.23%) with an increase in the rules-based attributes from ED to Final_Standard. As the *RBC_EDscore* increases, the likelihood of increasing the rules-based characteristics in the Final_Standards also increases. Approximately 30.92% of the comment letters in the sample are associated with a proposed standard without any changes in the rules-based attributes from ED to Final_Standard. Comment letters associated with proposed standards with a decrease in the rules-based attributes consist of 10.85% of the sample; that is, these EDs becomes more

Rules-based attributes	Criteria	Score
Bright-line thresholds	Count of the bright-line in the ED v. Final_Standard	Score "1" if bright-line thresholds increase, "0" if no change, "−1" if decrease
Scope exceptions:	Count of scope exceptions in the ED v. Final_Standard	Score "1" if scope exceptions increase, "0" if no change, "−1" if decrease
High-level of detail	Difference in the number of words in the Final_Standard v. ED and divide by word in ED	Score "1" if in top quartile, "0" otherwise
Implementation guidance	Count of implementation guidance included in document	Score "1" if bright-line thresholds increase, "0" if no change, " −1" if decrease

Table 4.
Summary of the calculation of the *change_RBCscore*

Notes: This table provides a summary of the calculation of the changes in rules-based attributes from ED to Final_Standard (*change_RBCscore*)

Rules-based attributes	ED	Final_Standard	Score
Bright-line thresholds	1 bright-line	2 bright-line	1
Scope exceptions:	0 scope exceptions	2 scope exceptions	1
High-level of detail	12,582 words	23,718 words	1
Implementation guidance	4 tables, examples, illustrations	8 tables, examples, illustrations	1
Change_RBCscore			**4**

Table 5.
Example of calculation of *change_RBCscore*- ASU 2014–08

Notes: This table provides an example of the calculation of the changes in rules-based attributes from ED to Final_Standard (*change_RBCscore*) for ASU 2014-08. For this standard, there is an increase in the number of bright-line thresholds, scope exceptions and implementation guidance from the ED to the Final_Standard. There is also an 88.5% increase in the detail (or total words), which falls into the top quartile; therefore, the change for high-level of detail is scored a "1". The overall *change_RBCscore* is a "4"

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principles-based. In total, approximately 41.77% of the sample results in zero or negative
changes in the rules-based characteristics.

4.3 Measurement of the independent variable
For the EDs in the sample, each comment letter submitted by the various constituents were
downloaded (from the FASB website). The FASB makes each comment letter available in
PDF format, which can be converted into a machine-readable format for text analysis. An
"add-on" was used to download all the comment letters (in PDF format) simultaneously for
each ED. Next, the comment letters for each of the Big-4 were extracted from the overall
sample population to measure the word count and to obtain the tone measures.

The PDF files are converted to ".txt" files to enable the content to be read and analyzed
systematically. Each ".txt" file is scanned to ensure there are no large errors that may have
occurred in conversion. Six of the Big-4 comment letter files cannot be converted to ".txt"
from the PDF reader; as such, these files were manually typed. This mainly occurs in
scanned comment letters that were submitted in the earlier years of the sample. Using these
".txt" files, the independent variables are measured for the Big-4 sample.

First, the total word count was measured. A Python code was used to automatically
generate the total word count, *wordcount*, for each of the comment letters within the sample.

	No. of comment letters by *change_RBCscore*		
change_RBCscore	# of Comment letters	Percent	Cumulative percent
(−2)	4	1.60	1.60
(−1)	23	9.20	10.80
0	78	31.20	42.00
1	66	26.40	68.40
2	54	21.60	90.00
3	21	8.40	98.40
4	4	1.60	100.00
Total	250	100.00	

Notes: This table provides the number of comment letters by *change_RBCscore* (frequency) and the
percentage of comment letters within the sample for each change score

Table 6.
Big-4 comment
letters by
change_RBCscore

		change_RBCscore							
		−2	−1	0	1	2	3	4	Total
RBC_EDscore	0	0.00%	0.00%	52.18%	6.52%	41.30%	0.00%	0.00%	100.00%
	1	0.00%	4.30%	45.17%	37.63%	4.30%	8.60%	0.00%	100.00%
	2	0.00%	23.81%	12.69%	25.40%	25.40%	6.35%	6.35%	100.00%
	3	0.00%	11.43%	11.43%	34.28%	42.86%	0.00%	0.00%	100.00%
	4	30.77%	0.00%	0.00%	0.00%	0.00%	69.23%	0.00%	100.00%
Total		1.60%	9.20%	31.20%	26.40%	21.60%	8.40%	1.60%	100.00%

Notes: This table provides the percentage of comment letter for each *change_RBCscore* by original
RBC_EDscore. For example, there are 52.18% of the comment letters associated with the EDs with a
RBC_EDscore of "0" and a *change_RBCscore* of "0." For the overall sample, there are 31.20% of the
comment letters associated with the EDs with a *change_RBCscore* of "0"

Table 7.
Transition matrix of
RBC_EDscore and
change_RBCscore

The measure, *wordcount*, was used as one measure of the extent of the comment letters submitted by each Big-4 firm. *Wordcount* was also used to develop the measure for tone as described below.

Next, to determine the tone, Loughran and McDonald (2011) dictionary of "negative," "uncertain" and "litigious" words was used. In their research, Loughran and McDonald (2011) develop various dictionaries of words to assess the tone of documents representing a financial context. In their research, they noted that widely-used dictionaries to measure tone in textual information, such as the Harvard Psychological Dictionary, (specifically, the Harvard-IV-4 TagNeg ("H4N")) in psychology and sociology research), classify words as negative (i.e. "capital," "liability" and "tax") that do not have a negative connotation in a financial context (Loughran and McDonald, 2011). In addition, they identified words that have a negative connotation in a financial context that are not on the H4N list (i.e. "misstatement," "restate" and "unanticipated"). Given these differences, they developed sentiment dictionaries to evaluate negative and positive tone in a business setting [8]. They extended their analysis to further develop sentiment dictionaries representing uncertain and litigious tones.

Loughran and McDonald's list consists of 2,355 words that have a negative connotation in a finance and business context [9]. They also created word lists that are indicative of the following sentiments in a financial context, namely, positive (354 words), litigious (903 words) and uncertainty (297 words). In this research setting, one advantage of using an established dictionary, such as Loughran and McDonald dictionaries, is that it provides for a controlled and objective dictionary. However, a disadvantage is that the setting of this research is unique and the word lists may not be comprehensive to address language used by auditors to express audit risk. As such, the words on each list were analyzed and adjustments were made to eliminate words that may bias the results. Specifically, the following words were removed from the litigious tone dictionary given these terms are part of the naming convention for the FASB's accounting standards, namely, codification, codifications, codify, codified, codifies, codified, codifying, amend, amends, amendments, amending, amendable, subparagraph and subparagraphs. Similarly, from the uncertainty tone dictionary, these words were removed, namely, exposure, exposures, intangibles, intangible and unhedged.

Additional words were also considered to be included with the Loughran and McDonald dictionaries that may be indicative of audit risk from an auditors' perspective. In the audit field, any judgments that are made by clients give rise to uncertainty (and increase audit risk). Using the word "judgment," WordNet [10] was used to derive a list of synonyms for judgment and include the list in the revised uncertainty dictionary. WordNet was also consulted to identify any additional synonyms for "uncertainty" and determine if there are relevant words not included in the Loughran and McDonald uncertainty dictionary. The list below includes a listing of the words added to the Loughran and McDonald uncertainty dictionary to capture uncertainty from an auditors' perspective. With the revised list, an alternate uncertainty measure was derived: percuncertain2_tone:

- assess, assesses, assessment, assessments, assessing, assessed;
- decide, decides, deciding, decision, decisions;
- decision making, decision-making;
- discern, discernment, discerns, discerned, discerning;
- estimate, estimates, estimated, estimating, estimation, estimations;
- evaluate, evaluated, evaluates, evaluating, evaluation, evaluations;

- forecast, forecasts, forecasting, forecasted;
- gauge, gauges, gauged;
- interpret, interprets, interpreting, interpreted, interpretation, interpretations;
- opinion, opinions, opined, opining;
- persuade, persuades, persuaded, persuading, persuasion, persuasive;
- sentiment, sentiments;
- subjective;
- thought, thoughts;
- view, views, viewed, viewpoint, viewing; and
- judge, judgment, judgement, judges, judged, judging, judgmental, judgemental.

This above list provides a listing of the words that were included in the alternate uncertainty measure, percuncertain2_tone. In the audit field, judgments made by audit clients may increase audit risk. As such, a list of words were derived based on WordNet synonyms for "judgment" and added to Loughran and McDonald's dictionary of uncertainty.

Each of the adjusted sentiment dictionaries were used to extract the tone from the Big-4's comment letters. A Python code was used to search the ".txt" files within the sample for the words from each tone dictionary. The Python code automatically calculated the total occurrences of each word for the tone measures based on the adjusted dictionaries for each sentiment (negative, uncertainty, the adjusted uncertainty and litigious tones). It then summed the total number of words found in each ".txt." file for each sentiment dictionary. Next, using the total occurrences of words for each sentiment dictionary, the tone measures were calculated within each comment letter submission made by the Big-4 in the sample as follows:

$$percneg\_tone = \frac{\text{total negative words used in the comment letter [11]}}{\text{total number of words in the comment letter submission (}wordcount\text{)}} \quad (1).$$

$$percuncertain\_tone = \frac{\text{total uncertainty words used in the comment letter}}{\text{total number of words in the comment letter submission (}wordcount\text{)}} \quad (2)$$

$$percuncertain2\_tone = \frac{\text{total adjusted uncertainty words used in the comment letter}}{\text{total number of words in the comment letter submission (}wordcount\text{)}} \quad (3)$$

$$perclitig\_tone = \frac{\text{total litigious words used in the comment letter}}{\text{total number of words in the comment letter submission (}wordcount\text{)}} \quad (4)$$

For each measure, the ratios above control for the varying lengths of the comment letters submitted by the Big-4 and measure the tone variables as a percentage of the word count for each sentiment divided by the total word count in the comment letter. In Section 5, the mean statistics are provided for each of the independent variables.

4.4 Research methodology
Given that the dependent variable, *change_RBCscore*, is an ordinal variable and the sample is not normally distributed, a non-parametric statistical test is used as a preliminary test. The Spearman's rank-order correlation [12] is first conducted to test whether there is an association between the *change_RBCscore* and the measures of tone and total word count. If the dependent variable (*change_RBCscore*) tends to increase (decrease) when the independent variable (*wordcount, percneg_tone, percuncertain_tone, percuncertain2_tone*

and *perclitig_tone*) increases, the Spearman correlation coefficient is positive (negative). *H1* and *H2a-c* hypothesize that there is a positive association between the length and tone of the comment letters and the *change_RBCscore* (length and tone of the comment letters increases as the *change_RBCscore* increases).

Next, given the dependent variable (*change_RBCscore*) has seven categories ranging from −2 to 4, a multi-nomial logistic regression is then performed to assess the likelihood that the tone and the extent of the comment letter influence the FASB's decision to increase or decrease the rules-based characteristics in the Final_Standard. The multi-nomial logistic regression compares the multiple *change_RBCscore* categories from binary logistic regressions between each score and a reference base case (*change_RBCscore* = 0). The classification probabilities of the observations for each *change_RBCscore* are computed by the odds ratio.

For this analysis, the predictor or independent, variables are *wordcount* and the three tone measures (*percneg_tone, perclitig_tone and percuncertain2_tone*). The control variables consist of the *type_standard* (1 to 3), *codif_topic* (1 to 5) and the *year* in which the ED was initially provided to the public for comment. One limitation is that this analysis does not control for other stakeholders that may influence the standard-setting process, which could result in omitted variables from the regression analysis. Another constraint is that there are a limited number of comment letters at the high and low end of the range for the *change_RBCscore* (−2 and 4 only have one ED or four comment letters each), which may skew the results. Therefore, the outliers (*change_RBCscore* = −2 and 4) are removed for purposes of the multi-nomial logistic regression analysis. The multi-nomial logistic regression analysis uses the following model for Big-4 accounting firm i on ED s:

$$P(change\_RBCscore_s) = \beta_0 + \beta_1 wordcount_{is} + \beta_2 percneg\_tone_{is} + \beta_3 perclitig\_tone_{is}$$
$$+ \beta_4 percuncertain2\_tone_{is} + \beta_5 type\_standard_{is}$$
$$+ \beta_6 codif\_topic_{is} + \beta_7 year_s$$

Using this model, *H1* and *H2a-c* indicates that the three tone measures and the *wordcount* coefficients will increases when compared to the reference base outcome (*change_RBCscore* = 0) as noted in *H1* and *H2a-c*.

5. Results
5.1 Descriptive statistics
Table 8 provides the mean statistics for each of the independent variables by *change_RBCscore*, which ranges −2 to 4. The mean *wordcount* varies with *change_RBCscore*. The lowest mean *wordcount* (1,600.39 words) is when *change_RBCscore* = 0, indicating that less extensive comment letters do not result in changes to the rules-based characteristics of the Final_Standards as expected. The highest mean *wordcount* (7,523.67 words) is when *change_RBCscore* = 3. However, there is variability through the range of *change_RBCscore* and the mean *wordcount* does not increase as the *change_RBCscore* increases as *H1* states. This indicates that the extent or length of the Big-4's comment letters may not influence or increase the rules-based attributes included in the Final_Standard.

Similar to *wordcount*, *H2a-c* states that higher negative, litigious and uncertainty tones in the comment letters are expected to be increases as the rules-based characteristics of Final_Standards increase. For *percneg_tone*, the lowest mean is when *change_RBCscore* = −2

(mean = 0.01077) and the highest mean is when *change_RBCscore* = 4 (mean = 0.02793); however, the mean *percneg_tone* fluctuates throughout the range of *change_RBCscore* and does not consistently increase as the *change_RBCscore* increases as *H2a* states. This may indicate that opposition to a proposed standard may not increase as the rules-based attributes in the Final_Standards increase.

For *perclitig_tone*, the mean percentage tone also demonstrates variability, increasing as the *change_RBCscore* increases, with a slight decline when there is no change in rules-based characteristics from the ED to Final_Standard (*change_RBCscore* = 0). Then, the mean declines again as the *change_RBCscore* = 2, reaches its peak at *change_RBCscore* = 3 (mean = 0.00733) and has the lowest mean *perclitig_tone* (mean = 0.00031) when *change_RBCscore* = 4. The *perclitig_tone* fluctuates throughout the range and does not consistently increase as the *change_RBCscore* increases as *H2b* states, indicating that the litigious tone may not influence changes in rules-based attributes and reflect the Big-4's concerns with audit risk/litigation risk.

Both *percuncertain_tone* and *percuncertain2_tone* measures also fluctuate in the mean tone with *change_RBCscore* = −2 (mean = 0.02126 and 0.02574, respectively) demonstrating the highest mean *percuncertain_tone*/p*ercuncertain2_tone*. The mean *percuncertain_tone* decreases when *change_RBCscore* = −1 and then continuously increases as the changes in rules-based characteristics increases from the ED to the Final_Standard. Finally, there is a decline in the mean *percuncertain_tone* measures when *change_RBCscore* = 4, which is the lowest (mean = 0.00971 and 0.01426, respectively). If the highest and lowest *change_RBCscore* are excluded given the low number of comment letters for each, the *percuncertain_tone*/p*ercuncertain2_tone* measures demonstrate an increasing trend as changes in the rules-based characteristics increase as indicated by *H2c*, indicating that the uncertainty tone may influence the rules-based attributes in the Final_Standard and may reflect the audit risk that arises when well-specified rules are lacking.

In the next sections, the dependent variable, *change_RBCscore*, is used to further test whether the Big-4 potentially influence the changes in the rules-based attribute based on length and tone of the Big-4's comment letters.

5.2 Results of spearman rank-order correlation

Table 9 provides the results of the Spearman rank-order correlation test, which vary *wordcount* and each of the tone measures. For the length of the Big-4's comment letters,

change_ RBCscore	# of Comment letters	percneg_tone	perclitig_tone	percuncertain_tone	percuncertain2_tone	wordcount
−2	4	0.01077	0.00171	0.02126	0.02574	6711.00
−1	23	0.01826	0.00404	0.01433	0.02069	5746.91
0	78	0.01866	0.00386	0.01115	0.01537	1600.39
1	66	0.01337	0.00490	0.01221	0.01705	3128.09
2	54	0.01378	0.00420	0.01345	0.01843	2718.50
3	21	0.01406	0.00733	0.01509	0.01985	7523.67
4	4	0.02793	0.00031	0.00971	0.01426	2727.00
Total	**250**	**0.01581**	**0.00443**	**0.01269**	**0.01749**	**3224.04**

Notes: This table provides the mean *percneg_tone*, *perclitig_tone*, *percuncertain_tone*, *percuncertain2_tone* and *wordcount* for each *change_RBCscore*

Table 8.
Descriptive statistics: Mean *wordcount* and tone measures by *change_RBCscore* for the Big-4 accounting firms

there is a statistically significant relationship, at $p < 0.05$, between *wordcount* and the *change_RBCscore*. The results indicate that there is a positive correlation between the *wordcount* and *change_RBCscore* (Spearman's rho = 0.1294, $p = 0.0409$) as expected given *H1*. These results show that the more extensive the Big-4's lobbying efforts (as measured by the length of the comment letters) is positively associated with the increase in rules-based attributes that are ultimately reflected in the Final_Standard by the FASB, suggesting that the Big-4's efforts may influence the FASB's changes in the rules-based attributes from the ED to the Final_Standard. The more extensive submissions are likely to contain feedback suggesting changes and requests for clarity for the FASB to consider upon finalizing the proposed standard.

Next, the negative, uncertainty and litigious language used by the Big-4 in their comment letters is evaluated. For *percneg_tone*, the results indicate that there is a negative correlation between the *percneg_tone* and *change_RBCscore* (Spearman's rho= −0.0576, $p = 0.3644$); however, it is not statistically significant [13]. This suggests that the Big-4's tone of opposition, as measured by the negative language used in their comment letters, may not influence changes in the rules-based attributes made by the FASB as expected in *H2a*. The FASB may not be concerned with strong opposition, but rather be looking for feedback regarding concerns or uncertainty surrounding the costs and implementation of the proposed standards.

Similarly, for *perclitig_tone*, the results indicate that there is a weak positive correlation between the *perclitig_tone* and *change_RBCscore* that is not statistically significant (Spearman's rho = 0.0261, $p = 0.6815$). This suggests that the Big-4's tone concerns with potential audit risk (litigation risk), as measured by litigious tone, may not influence the changes in the rules-based attributes made by the FASB as expected in *H2b*.

Finally, the results for *percuncertain2_tone* [14] demonstrated a statistically significant relationship, at $p < 0.10$, between the alternate measure for uncertainty, *percuncertain2_tone* and the *change_RBCscore*. The results indicate that there is a positive correlation between the *percuncertain2_tone* and *change_RBCscore* (Spearman's rho = 0.1115, $p = 0.0784$). The results show that the Big-4's increasing uncertainty for an ED is positively associated with the changes in rules-based attributes that are ultimately reflected by the FASB in the Final_Standard. This indicates that the Big-4's uncertainty tone may influence the FASB's changes in the rules-based attributes from the ED to the Final_Standard as expected in *H2c*.

Overall, the non-parametric test provides preliminary results regarding the association to the Big-4's efforts in the FASB's comment letter process as measured by the length of their comment letters and the adjusted uncertainty measure. This suggests that uncertainty expressed in their comment letters and the longer comment letters may impact the FASB's

All standards	Observations	Hypothesis	Predicted sign	Spearman's rho	Prob > |t|	
wordcount	250	*H1*	+	0.1294	0.0409	**
percneg_tone	250	*H2a*	+	−0.0576	0.3644	
perclitig_tone	250	*H2b*	+	0.0261	0.6815	
percuncertain_tone	250	*H2c*	+	0.0880	0.1652	
percuncertain2_tone	250	*H2c*	+	0.1115	0.0784	*

Table 9.
Results of Spearman rank-order correlation for Big-4 tone and *wordcount* measures

Notes: **significant at $p < 0.05$; *significant at $p < 0.10$ This table provides the results for the Spearman Rank-Order Correlation test of the association between tone and the length of the Big-4's comment letters and the *change_RBCscore*

decision to include more rules-based attributes in the Final_Standard when compared to the initial proposed standard. However, the level of opposition, as measured by the negative tone and litigious tone, may not influence whether the FASB includes additional rules-based criteria within the Final_Standard. In the next section, further analysis is performed using a multi-nomial logistic regression analysis.

5.3 Results of multi-nomial logistic regression

As noted in the previous section, the *change_RBCscore* for −2 and 4 have been removed as outliers for purposes of the multi-nomial logistic regression analysis. First, the model for the multi-nomial logistic regression was evaluated for model fitting. The log likelihood test verifies whether the quality of model fitting is consistent when comparing the model with only the intercept to the model with the predictor variables. A decrease in the log likelihood value can be interpreted as having improved predictive power in relation to the model with only the intercept; therefore, a small log likelihood value is better. For the model in this analysis, the log likelihood value with the intercept only is −360.526 and the log likelihood value for the full model decreases to −242.292 indicating an improved predictive power.

In addition, the existence of a relationship between the dependent variable, *change_RBCscore* and the independent variables (*wordcount, percneg_tone, perclitig_tone* and *percuncertain2_tone*) can also be corroborated by the Chi-square test. The *p*-value ($p = 0.0000$) is statistically significant, indicating that the null hypothesis (i.e. that there is no statistical difference between a model with and without explanatory variables) is rejected. Finally, the pseudo-R^2 is 32.56%, which shows the capacity of explanation of *change_RBCscore* by the independent variables, namely, *wordcount, percneg_tone, perclitig_tone* and *percuncertain2_tone*.

The reference base case for this analysis is no changes in rules-based characteristics from the ED to the Final_Standard (*change_RBCscore* = 0). When the rules-based characteristics increase, the multi-nomial logistic regression results indicate whether the *wordcount* and three tone measures influence the change in rules-based characteristics. When the *change_RBCscore* of 1 and 3 are compared to the reference base case of 0, an increase in the rules-based characteristics is more likely to have been influenced by the extent of the Big-4's comment letters (or *wordcount*) as the model coefficient is positive and significant (Coef. = 0.0005, $p = 0.001$ for *change_RBCscore* = 1 and Coef. = 0.001, $p = 0.000$ for *change_RBCscore* = 3); therefore accepting *H1*. An increase in the rules-based characteristics are less likely influenced by the *percneg_tone* (Coef. = −62.971, $p = 0.015$ for *change_RBCscore* = 1 and Coef. = −117.956, $p = 0.038$ for *change_RBCscore* = 3), which is opposite of the expectation noted in *H2a*. For *perclitig_tone* and *percuncertain2_tone*, *H2b* and *H2c*, respectively are rejected as the results are not significant.

For *change_RBCscore* = 2, when compared to the reference base case, the increase in the rules-based characteristics are more likely to be influenced by the *wordcount* (Coef. = 0.0005, $p = 0.001$) and *percuncertain2_tone* (Coef. = 95.683, $p = 0.008$). Therefore, *H1* and *H2c* are accepted. However, the *percneg_tone* (Coef. = −112.457, $p = 0.001$) is less likely to influence an increase in rules-based characteristics, which is also opposite of the expectation noted in *H2a*. For *perclitig_tone*, *H2b* is rejected as the result is not significant.

When *change_RBCscore* is −1 and compared to the base case, a decrease in the rules-based characteristics is more likely to have been influenced by *wordcount* (Coef.= 0.001, $p = 0.0000$) only; however, the coefficient is expected to be negative when the rules-based characteristics decrease when compared to the reference base case. These results indicate that even when the rules-based characteristics decrease, there changes are influenced by the

wordcount. *H2a*, *H2b* and *H2c* are rejected as the results are not significant for each of the tone measures.

For the control variables of *type_standard*, *codif_topic*, and *year*, the variables are generally not statistically significant with the exception of *year* (*change_RBCscore* = −1), which is more likely to influence the decrease in rules-based characteristics when compared to the reference base case. Another exception is the *codif_topic* "General Principles/Master Glossary" (*change_RBCscore* = 2), which is less likely to influence the increase in rules-based attributes when compared to the *codif_topic* = 1 (Broad Transactions/Industry). These results indicate that *type_standard*, *codif_topic* and *year* are generally not likely to influence the changes in rules-based characteristics.

Overall, in each *change_RBCscore*, the *wordcount* influences whether the rules-based characteristics increase, indicating that more extensive and lengthy comment letters written by the Big-4 influence the changes made by the FASB. As such, when compared to the base of 0, *H1* is supported. Furthermore, the uncertainty tone has the most significant influence when the *change_RBCscore* = 2, which provides some evidence that *H2c* is supported and that the uncertainty tone in the comment letter is considered by the FASB when finalizing accounting standards. Overall, the *wordcount* or the extent of the comment letter influences changes made to Final_Standard when compared to the ED (Table 10).

Similar to the non-parametric test, the results of the multi-nomial logistic regression provide further insight into whether the Big-4's efforts (as measured by the length of their comment letters and the adjusted uncertainty measure) influence the FASB's comment letter process when comparing changes to the reference base case *change_RBCscore* = 0. The Big-4 may submit more extensive submissions that contain feedback, suggest changes and request clarity in the ED. Furthermore, the results suggest that the uncertainty expressed in their comment letters and the longer comment letters may impact the FASB's decision to include more rules-based attributes in the Final_Standard when compared to the initial proposed standard. Given the Big-4 is a key stakeholder, the FASB recognizes there are costs (and benefits) associated with the implementation of a new standard, specifically for the auditors that are opining on the information provided in financial statements. A new standard may provide a new accounting method or require evaluation of judgments made by management on matters such as estimates that expose auditors to additional audit risk and litigation risk. An increase in the uncertainty associated with a proposed standard may indicate that adjustments or changes are needed to clarify the proposed standard to reduce audit risk.

However, the level of opposition, as measured by negative tone, decreases as the FASB includes additional rules-based criteria within the Final_Standard when the *change_RBCscore* is 1 and 3. The FASB may not be concerned with strong opposition to a proposed standard, but rather be looking for feedback regarding concerns or uncertainty surrounding the costs and implementation of the proposed standards. The litigious tone has no effect on the influencing the changes in rules-based attributes in a standard when compared to the reference base case.

6. Conclusion
The purpose of this research was to explore whether the Big-4 accounting firms' lobbying efforts influence the Final_Standard, specifically whether a standard becomes more rules-based or principles-based. As part of its due process, the FASB acknowledges the need to solicit feedback from all constituents given the costs and benefits associated with implementing each new accounting standard. Auditors assess risk based on the complexity, subjectivity and judgment required to account for a transaction. New standards may

$$P(change\_RBCscore_{es}) = \beta_0 + \beta_1 wordcount_{is} + \beta_2 percneg\_tone_{is} + \beta_3 perclitig\_tone_{is} + \beta_4 percuncertain2\_tone_{is} + \beta_5 type\_standard_{is} + \beta_6 codif\_topic_{is} + \beta_7 year_s$$

		change_RBCscore = −1		change_RBCscore = 1		change_RBCscore = 2		change_RBCscore = 3	
		Coef.	P > |z|	Coef.	P > |z|	Coef.	P > |z|	Coef.	P > |z|
wordcount	H1	0.001	0.000 ****	0.0005	0.001 ***	0.0005	0.001 ***	0.001	0.000 ****
percneg_tone	H2a	4.388	0.941	−62.971	0.015 *	−112.457	0.001 ***	−117.956	0.038 *
perclitig_tone	H2b	−56.607	0.392	−60.414	0.146	−74.319	0.103	−42.659	0.498
percuncertain2_tone	H2c	108.320	0.093	33.670	0.334	95.683	0.008 **	102.759	0.100
type_standard									
Amendment		−16.870	0.993	0.391	0.485	−0.358	0.536	−0.987	0.297
Industry-related		1.250	0.323	0.790	0.232	−0.114	0.878	1.073	0.349
codif_topic									
Assets		−19.716	0.995	−0.372	0.543	−1.325	0.070	1.410	0.231
Revenue/expenses		−21.615	0.996	−0.189	0.740	−1.293	0.085	1.856	0.059
General principles/ master glossary		16.528	0.993	−19.390	0.996	−1.655	0.036 *	−15.904	0.998
Presentation		−0.694	0.693	−0.224	0.766	1.188	0.079	3.421	0.005 **
year		0.503	0.007 **	0.038	0.481	0.284	0.000 ****	−0.066	0.491
_cons		−1015.509	0.006 **	−77.200	0.478	−570.675	0.000 ****	128.886	0.503

(Note: in change_RBCscore = 2 and change_RBCscore = 3 panels, the "General principles/ master glossary" row is labelled *codif_topicGeneral principles/ master glossary*)

Notes: ****significant at $p < 0.0001$, ***significant at $p < 0.001$, **significant at $p < 0.01$, *significant at $p < 0.05$. This table provides results of the multi-nomial logistic regression to determine the likelihood that the tone and the extent of comment letters influence the FASB's decision to increase or decrease the rules-based characteristics in the Final_Standard when compared to the reference category of change_RBCscore = 0

Table 10.
Results of multi-nomial logistic regression

increase the amount of judgment their clients may use in accounting for a transaction or may be a new method that increases exposure to audit risk or litigation risk.

Under the premise that accounting firms prefer well-specified rules to mitigate audit risk and litigation risk, this research examines, using textual analysis, whether the Big-4's tone and comment letter length are associated with how much more or less rules-based versus principles-based a proposed standard becomes once it is finalized. A measure, based on Mergenthaler's (2009) RBC score, was developed to identify how much more (less) rules-based (principles-based) a Final_Standard is compared to an ED. This measure was used as a proxy for audit risk. This research tests whether there is an association between the *change_RBCscore* and the various measures of tone and extent to evaluate influence.

The evidence suggests that the Big-4's lobbying efforts influence the Final_Standards to become more rules-based. Specifically, the results show the Big-4's increasing use of uncertainty language for an ED is positively associated with the changes in rules-based attributes that are ultimately reflected in the FASB's Final_Standard. The results also show that as the length of the comment letters increase, the change in rules-based attributes also increases in the Final_Standard issued by the FASB. However, evidence also suggests that the level of opposition, as measured by negative tone (a proxy for the support), may not influence whether the FASB includes additional rules-based criteria within the Final_Standard. The litigious tone (another proxy for audit risk/litigation risk) has no effect on the influencing the changes in rules-based attributes in a standard when compared to the reference base case.

Prior literature has revealed varying results when evaluating the influence of lobbying efforts by the FASB's key constituents. The results of this research contribute to the existing literature, specifically Haring (1979), which provides evidence that changes from the EDs to the Final_Standards were positively associated to accounting firms' preferences. Similarly, the results of this research reignites the discussion whether constituents influence the FASB's standard-setting and demonstrates that analyzing the content of the comment letters through text analysis may yield additional results in this area of research. Particularly, the uncertainty tone and the extent of comment letters may invoke changes in the rules-based characteristics of a Final_Standard to reduce audit risk as auditors may prefer well-specified rules. In addition, Buckmaster *et al.* (1994) indicate that stakeholders, such as accounting firms, have found no influence by constituents over the FASB's standard-setting process specific to support or opposition for a standard. This research also finds little to no evidence that opposition to a proposed standard influences the changes in the rules-based attributes. In some circumstances, the negative tone is less likely to influence an increase in rules-based characteristics. Using textual analysis and a larger sample population, this research further contributes to the existing literature's finding and observations.

Overall, this research provides a much needed perspective on the potential influence that a key stakeholder, the Big-4, has on standard-setting and financial reporting. Specifically, evidence demonstrates the role that Big-4 auditors play in affecting the rules-based characteristics in the final accounting standards to minimize audit risk and litigation risk by limiting managements' choices and accounting flexibility as intended by less rules-based standards (i.e. more principles-based). This suggests the Big-4 prioritize a reduction in their own litigation risk over possible preferences of their clients for less rigid standards. Future research in this area could further evaluate the

influence of other constituent groups and their potential impact on the FASB's inclusion of more (or less) rules-based standards.

Notes

1. The exception is EDs for EITF Abstracts/Consensus of the EITF as the Big-4 are part of the EITF and their feedback is considered as part of developing the standard.

2. In 2002, the FASB and the IASB agreed to collaborate to achieve convergence of US GAAP and IFRS (The Norwalk Agreement (FASB, 2002)) to enhance the comparability of financial reporting across the globe.

3. The SEC study included the following as examples of rules-based standards, namely, lease accounting, derivatives and hedging, stock-based compensation and de-recognition of financial assets and liabilities. Characteristics of rules-based standards are existence of exceptions and bright-line tests that lead to large amounts of implementation guidance (i.e. FAS 133 there are over 800 pages, including a vast number DIG Issues that provide implementation guidance).

4. Examples of principles-based standards (objectives-only standards) included FAS 34, 52, 141, 142, 143, 144 and 146 (SEC, 2003).

5. Examples of principles-only standards include impairment of long-lived assets and historical cost (SEC 2003).

6. Mergenthaler 2009 develops a RBC score for each FAS; however, his scoring does not extend to cover any ASUs issued post-codification.

7. With the implementation of the codification, the FASB no longer distinguishes between the various forms of guidance, except for ASUs that are issued as a consensus of the EITF. All guidance previously issued (i.e. EITFs, FSPs, FINs, FASB Technical Bulletins and DIG Issues) was superseded and codified in 2009.

8. The H4N dictionary was considered to assess tone in this setting as it is unique and not specifically text related to financial statements or financial performance. However, given that the information is specific to the standards that govern financial reporting in the USA and that the Big-4 are responsible for auditing the financial statements of public companies, the dictionaries established by Loughran and McDonald are more appropriate and relevant to evaluate the tone. A statistical analysis was also performed using the H4N dictionary and no significant results were, which may be attributed to the potential noise associated with words that may not be negative in the financial reporting context.

9. For Loughran and McDonald's dictionaries, refer to www3.nd.edu/~mcdonald/Word_Lists.html.

10. WordNet was developed by Princeton University. It is a database that groups together nouns, verbs, adjectives and adverbs into sets of synonyms. The result is a database of related concepts and words (Princeton University, 2010).

11. In a working paper that surveys the use of textual analysis in finance and accounting research, Loughran and McDonald (2016) indicate that some research uses a net measure of the positive and negative constructs. However, they suggest that positive tones are best left untested unless research has a method to "convincingly eliminate the problems with negation." They find that there is less ambiguity with a negative statement (i.e. using negative words to make a positive statement as compared to using positive words to frame a negative statement). In addition to *percneg_tone*, a net negative tone was derived (negative words minus positive words) for the numerator of the *percneg_tone* measure. There were no significant differences in the results when using the net negative tone versus negative tone.

12. This statistical test is a measure of the strength and direction of the association between two variables. The Spearman correlation is a measure from −1 to 1. Two variables are highly

correlated when the rank of the two variables is similar (i.e. close to −1 or 1) for the observations in the sample. Conversely, two variables are weakly correlated when the rank of the two variables is dissimilar (i.e. close to 0). The sign of the Spearman correlation coefficient represents the direction of association of the two variables.

13. The relationship between the *percnetneg_tone* (the net measure of the Loughran and McDonald's negative and positive tone dictionaries) and the *change_RBCscore* was also tested using the Spearman's rank-order correlation. A slightly different result was found as compared to the *percneg_tone*; however, it is not statistically significant. The results indicate a negative correlation between the *percnetneg_tone* and change_RBCscore (Spearman's rho = −0.0527, p = 0.4064).

14. The Spearman rank-order correlation was performed to test the relationship between percuncertain_tone and change_RBCscore; however, a similar result as percuncertain2_tone was not found. The results indicate that there is a positive correlation between the percuncertain_tone and change_RBCscore but it is not statistically significant (Spearman's rho = 0.0880, p = 0.1652).

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Further reading

Loughran, T. and McDonald, B. available at: www3.nd.edu/~mcdonald/Word_Lists.html

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