One Hundred Years of Disappointed Expectations: A Quantitative Content Analysis of the Auditor's Responsibility to Discover Fraud Traced through *Montgomery's Auditing*, 1912-1998

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> It is true that contingent liabilities are at best difficult to locate, and almost impossible of discovery when an attempt is made to conceal their existence, but a professional auditor is supposed to undertake difficult tasks, and if he cannot report on anything except the entries which he finds in the books, he had better retire from the profession.
> - Robert Montgomery 1912, p. 165

> Part of my reason for writing this book is fascination with a profession that, though bulging with conscientious professionals who work 70, 80, or 90 hours a week, seems to have so little understanding today of what the public wants from it or how to go about fulfilling these expectations.
> - Mike Brewster 2003, p. 5

Are auditors responsible for detecting fraud in the companies they inspect? Most of the public thinks they are. Auditors demur, hedge, and equivocate. This "expectations gap" has existed for a long time. Teo and Cobbin (2005) find evidence of it in 19th-century England. In 21st-century America, Deloitte Touche Tohmatsu CEO William Parrett remarked that "it's really extremely difficult for the auditor to find a collusive fraud," but noted unhappily that investors nevertheless expect them to do so (Taub 2005).

Generally, observers believe the expectations gap is dynamic; it widens and narrows over time. They disagree or are vague about the timing of these changes. Assuming the public's expectations are constant (see, e.g., Heier *et al.* 2005, p. 55), the size of the expectations gap must depend on changes in auditors' devotion to

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discovering fraud. Contemporary auditors' attitudes can be quantified, but studying past attitudes is more difficult. Previous studies have relied on qualitative assessments of official standards, auditing textbooks, and court cases from various time periods.

The present study provides quantitative evidence, via content analysis of the *Montgomery's Auditing* reference book series, about two questions: 1) How did the U.S. auditing profession's attitude to the goal of fraud detection change over the 20th century? And 2) how did the profession's attitude to *implementing* fraud detection change over that century?

Formally, the profession went full circle on the first question, from acknowledging responsibility for fraud discovery in the early years of the 20th century, to minimizing or denying responsibility at mid-century, and finally returning to fraud discovery as a legitimate goal (albeit one accompanied by a good deal of ambivalence) by the end of the century. This paper measures these changing formal positions as expressed in three variables over successive editions of the widely respected audit reference work *Montgomery's Auditing*. The *Montgomery* series, generally recognized as the standard reference on American auditing practice for most of the century (Commission 1978, p. 33; Zeff 1987, p. 49), is used a proxy for the conventional wisdom of the profession.

Concerning the second question, we note that audit *practice* may diverge from *stated goals*. The paper presents evidence that interest in implementing the fraud detection goals persistently lagged the changes in the formal positions in the 1900s. At the end of the century, the profession's approach to fraud detection remained reluctant, at least as expressed in the widely cited and influential reference,

Montgomery's Auditing.

As a matter of positive theory, the profession's interest in *actions* concerning fraud detection suggests that auditors de facto accepted much more responsibility for discovering fraud in the first half of the century than they did in the second half. The pattern of implementation, so different from the pattern of the stated goals of the audit, raises questions about the normative power of auditing standards to alter the profession's deep reluctance to accept fraud detection responsibility on more than a formal level.

Finally, in reviewing the state of auditing historiography, Maltby (2009, pp. 235, 240) sees a gap in our knowledge of the techniques of auditing in many periods and indeed a paucity of any sort of auditing study for the early-to-mid-20th century. This paper makes a historiographical contribution by supplying evidence to help fill these gaps.

We begin with a discussion of the attitudes of auditors to a fraud detection responsibility, as observed in prior historical studies. We then describe our methodology, including the content analysis procedure, the variables measured, and the rationale for the design. Graphical and statistical analyses of the results follow, and a discussion of implications and limitations concludes the paper.

CONTEXT AND REVIEW OF THE LITERATURE

Fraud detection has been considered a major purpose of auditing for a very long time. Clikeman (2009, pp. 123-125) observes that government auditors have been tasked with fraud detection for over 5,000 years. Gupta and Ray (1992) note the literature on internal auditing showing fraud discovery to have been central to the audit function in both medieval and early modern times. The eminent British auditing

author Lawrence Dicksee (1905, pp. 357-359) appended a 12th-century treatise on "housebandry" to one of his auditing texts because it showed fraud detection to have been as important for auditors in that century as it was in Dicksee's time. Flesher, Previts, and Samson (2005), in their review of American auditing since the earliest colonial days, describe an activity suffused with the intent to detect financial misconduct.

At some point, a wide and enduring gap opened between the public and auditing professionals as to what could be accomplished in the way of fraud detection. The public at large continued to expect auditors to detect fraud, while the auditors themselves came to believe this expectation was unreasonable. In mid-to-late 19th-century England, Teo and Cobbin (2005) find an expectations gap to have existed between the judiciary and auditors (see also Clikeman 2009, pp. 123-131); Chandler *et al.* (1993) find the same gap between auditors on the one hand and businessmen and public officials on the other (see also Humphrey *et al.* 1991). Both the Cohen Commission in 1978 (Commission on Auditor's Responsibilities pp. xvii, 7-8) and the Treadway Commission in 1987 (National Commission, pp. 51-52) noted the gap in late 20th-century America. Using survey data, Benau *et al.* (1993, see especially p. 288) and Humphrey *et al.* (1993) quantify the expectations gap in Britain and Spain in recent years and note its long-term nature. Alleyne and Howard (2005) quantified the gap in Barbados using a survey of auditors, business people, investors, and a public official. Maltby (2009, pp. 232-235) remarks on how often the existence of an expectations gap has been confirmed in the auditing literature (see also Heier *et al.* 2005).

The literature thus suggests centuries of constancy in non-auditors' beliefs that

auditors should detect fraud. In the last quarter of the 20th century, the AICPA conducted a massive advertising campaign to persuade the public that the inherent limitations of the annual financial statement audit render fraud discovery expectations unrealistic. But even after an additional concerted effort by the profession in the 1980s to change U.S. users' expectations by issuing and publicizing the "expectations gap standards," Albrecht and Willingham (1993, p. 102) and Jaenicke and Wright (1993, p. 14) found no clear evidence that any change in attitudes had occurred. This suggests that the interesting question is what auditing professionals believe and do in the area of detecting fraud, and it is this which determines the size of the expectations gap at any particular time.

The Treadway Commission (1987, pp. 50-51) put the nadir of U.S. auditors' acceptance of a fraud detection responsibility (that is, the widest point of the expectations gap) at the mid-20th century. The Cohen Commission (1978, pp. 33-34) specified 1957 as the low point. Both commissions relied for their conclusions partly on the goals laid out in successive editions of *Montgomery's Auditing*. Chandler *et al.* (1993) agree that the changes in auditors' interest in detecting deliberate misrepresentations describe a U-shaped curve, though they study the British audit scene and place the low point of the curve at the last few decades of the 19th century.

Like the Cohen Commission, Clikeman (2009, p. 125) notes the explicit disinterest expressed in Montgomery's 1957 edition. He attributes the changes to accounting scandals and to reactions by the judiciary and legislative branches of the U.S. government. Gray and Moussalli (2006), too, suggest that accounting scandals and the ensuing public reactions have driven changes in the profession. Note that almost all of the studies mentioned are based on qualitative analysis of changes in

formally- or informally-stated audit goals, and the context of the changes.

Turning to the second research question, concerning the implementation of fraud detection, a few scholars have reported a divergence between auditors' stated goals and their fraud detection practices. In 1962, Brown remarked that despite the rejection of any fraud discovery responsibility from 1940 to 1960, "many audit techniques in this period were specifically designed to assist in the detection of fraud" (p. 701). On the other hand, Armitage (2008, p. 944) found the opposite divergence in more recent years. Comparing international surveys in 2000 and 2005 of auditing faculty's views of the importance of 41 topics in their audit classes, he found that respondents ranked fraud *awareness* as the 12th-most important topic in 2000 and the 5th-most important topic in 2005. In contrast, fraud *techniques* ranked 23rd in 2000 and 21st in 2005. Humphrey and Turley (1993, pp. 56-57) question whether auditors today in fact possess techniques to discover fraud even when they say they want to. According to these scholars, the principle that fraud should be identified and the practice of detecting fraud are not inviolably linked.

RATIONALE, METHOD, AND VARIABLES

Lacking in these studies is a quantification of the changes over time in the auditors' side of the expectations gap. Also lacking is an examination of the divergence over time between fraud detection goals and practices. As Maltby (2009, p. 240) admits, obtaining such evidence for the past, especially evidence of audit techniques, is quite difficult. She praises the solution adopted by Matthews and Pirie (2001); they used oral history to record the experiences of British auditors extending back to the 1920s. But Matthews and Pirie do not attempt to quantify any of the answers they received, and fraud detection was only one of many subjects on which

they collected reminiscences.

In short, there are unresolved questions. Specifically, how can we measure what auditors of the past sought to do and in fact did do to discover fraud? How can the expectations gaps of past years be quantified?

Content Analysis Method and Source Material

One method to achieve such quantification is content analysis. Shapiro and Markoff (1998) define content analysis as "*any systematic reduction of a flow of text (or other symbols)* to a standard set of statistically manipulable symbols representing the presence, the intensity, or the frequency of some characteristics relevant to social science" (p. 18; emphasis in the original). Documents relevant to the hypothesis are identified, a coding instrument is developed with which instances of the target variables are counted, and the results permit some degree of quantitative analysis in support or contradiction of the hypothesis (Weber 1985; Hodson 1999; for an example from the marketing literature, see Kassarjian and Kassarjian 1988; from political history, see Shapiro and Markoff 1998; from political science, see Santana 2000). The technique allows one to discern the pattern of complex issues. It is useful where evidence of a phenomenon takes the form of written text.

This study uses the *Montgomery's Auditing* series[1] as the source material for a content analysis. Positions adopted by *Montgomery's Auditing* are a reasonable proxy for the conventional wisdom of the profession about the relative importance of fraud discovery. The series also offers some evidence of past fraud detection practices, in that it includes, to a varying extent over the century, instructions to the reader on how

[1] The bibliographic citations for all the Montgomery volumes used appear in the reference list. The title varied slightly over the years. For convenience, we use the name by which the series was widely known in the late 20th century – *Montgomery's Auditing*.

to go about detecting fraud during an audit. With 12 editions published from 1912 to 1998, and a 1905 predecessor volume by the eminent British author Lawrence Dicksee (edited by Robert Montgomery), *Montgomery's Auditing* was a constant presence throughout the 20th century.[2]

For most of the 20th century, *Montgomery's Auditing* was recognized as the standard reference on American auditing practice (Commission 1978, p. 33), "an authoritative catalogue of settled practice" and "a major resource" (Zeff, 1987, p. 49). In the early 1970s, it was used by Ernst and Ernst as the reference for auditing staff CPE materials. It was the exclusive reference for members of Montgomery's successor firm, Coopers & Lybrand, and sat on the reference shelves of innumerable smaller firms. The series has also provided the primary source material for numerous prior historical studies (Brown 1962; Hackett and Mobley 1976; Commission 1978; Myers 1985; Chandler *et al.* 1993; Heier *et al.* 2005; Gray and Moussalli 2006; Nouri and Lombardi 2006; Clikeman 2009).

Robert Montgomery himself was a founder of Lybrand, Ross Brothers, and Montgomery, a predecessor of today's PricewaterhouseCoopers. He was an officer of the American Association of Public Accountants (predecessor to the AICPA), the founder of the *Journal of Accountancy*, one of the originators of the first U.S. authoritative standards of accounting and auditing in 1917, and an advisor on the text of the first income tax act in the 20th century (Zeff 1987). What Montgomery thought and wrote about auditing was considered authoritative, and after his death in 1953, his firm continued the influential series until 1998.

[2] The full bibliographic citations for the volumes in the series appear in the reference list under "Primary Sources." The title varied over the century; for convenience, this paper refers to all volumes as "*Montgomery's Auditing*."

For a number of reasons, changes in the content of *Montgomery's Auditing* are an imperfect proxy for changes in the profession's attitude to fraud detection goals and practices. For instance, we do not have a way to measure variation that may have occurred in the relative prominence of *Montgomery's Auditing* over the course of the 20th century. In the later years of the century, many new auditing textbooks appeared; to the extent that they were competitors, the influence of the *Montgomery* series may have been declining. But *Montgomery* was never primarily a textbook – it was a reference work for practicing auditors. We believe that it tracked the views of the profession well enough to measure broad changes in those views over the course of the 20th century.

In the 1980s and 1990s, U.S. professional literature greatly increased its emphasis on fraud detection. In an earlier paper (Gray and Moussalli, 2006), we described this as the beginning of a movement to re-unite forensic accounting and auditing after nearly a century of separate development of the fields. However, the present paper is not interested in forensic accounting as such, but in the extent to which regular audit work is concerned with fraud detection practices and standards. We study a single eminent and long-lived auditing series to try to discern the chronological variation in and attention to fraud detection during regular audits. Shorter series of textbooks and specifically forensic works would not serve the purpose as well as *Montgomery's Auditing* does – which is why it has so often been studied by scholars interested in the historical development of U.S. auditing.

Variables

The content of the Montgomery volumes was examined to identify material relevant to fraud detection. Two preliminary analyses of the content identified four

useful variables. The first three are "positions" variables, asserting a position on the auditor's responsibility. Prior literature citing Montgomery usually refers to some combination of these three positions variables. The last is a "practice" variable not previously studied – examples and guidance on fraud detection techniques. Descriptions of the four items and their derivative variables follow.

RESPONSIBLE – text explicitly asserting the auditor's responsibility to detect fraud. This includes statements such as the oft-cited item from the first edition: "The elementary or minor objects of an audit are: (1) The detection of fraud" (p. 10). It also includes discussion of legal responsibilities that clearly states or implies the author's agreement. Montgomery 1912, for example, discusses the auditor's criminal liability in British courts for false certifications and then adds, "It is believed that the criminal statutes of America would result in a similar conviction and sentence" (p. 574). Finally, the auditor's responsibility for detecting and reporting illegal acts is included (see Palmrose and Wright 1993, p. 227 for a discussion of illegal acts in the context of the expectations gap). The measure does not distinguish between defalcation and financial statement fraud, though examples given in some volumes occasionally indicate a concern with both types of fraud.

NOT RESPONSIBLE – text explicitly denying the auditor's responsibility to detect fraud. Included are assertions that the "auditor is not an insurer." Arguments for the position are also counted, such as the 1957 assertion that "extension of audit procedures in an effort to disclose defalcations would not serve the best interests of either the public accountant or his client" (p. 31).

NEUTRAL/MIXED – text discussing the goal of fraud detection in such an ambivalent way that it was not possible to classify it as accepting or denying

responsibility. This is a broad variable, including occasional legal discussion that does not clearly indicate the author's position on the auditor's responsibility, as well as text leaving the decision up to the auditor's professional judgment (e.g., Montgomery 1921, vol. 1, pp. 463-464). Most of this text is simply so mixed or ambiguous that a reader cannot be sure what the guidance is. For instance, the preface to the 1990 edition discusses the Treadway Commission findings and the expectations gap at length (pp. ix-xi), but only mentions the auditor's role in fraud detection explicitly at the beginning. The rest of the discussion is profoundly euphemistic, e.g.:

> Careful analysis of the new standards will reveal that the underlying conceptual basis of auditing continues to be sound and unchanged. What was needed were new ways for the professional literature to respond to the challenges posed by the current business environment and, in particular, the 'expectation gap,' a large part of which may be perhaps better described as a 'communication gap' …

Without reading the beginning of that section, one would not even know that fraud detection is the subject under discussion.

3-POSITIONS – the total of the words in the three variables just described. The logic behind this variable (which lumps together fraud detection acceptance, denial, and ambivalence), is that there is a difference between editions that discuss fraud for any reason and those that largely ignore the subject, disdaining even to deny responsibility for detecting it. We assume that discussion of any sort indicates a greater degree of interest or concern than does text that devotes little attention to the subject. [3]

HOW-TO – text explaining auditing procedures with an explicit or clearly implicit expression of the intention to discover fraud. This material was voluminous in

[3] We are indebted to Frances Dunham, professor emeritus of psychology at the University of West Florida, for suggesting this part of the analysis.

comparison to the formal positions variables. It has not been analyzed in prior studies based on the *Montgomery* series.

RESPONSIBLE and NOT RESPONSIBLE are widely accepted in the literature as valid measures of the American auditing profession's formal stance on fraud detection. In contrast, the HOW-TO variable does not measure fraud detection practices as directly. It might be argued, for instance, that authorial idiosyncrasies explain part of the variation in HOW-TO. In defense of our measure is Brown's 1962 observation that fraud detection was much more common in practice from 1940-1960 than the standards would indicate. This supports our findings for the RESPONSIBLE and HOW-TO variables in the 1949 and 1957 editions (see the discussion in Results below). In any event, HOW-TO is a good measure of what the profession thought its students and practitioners should learn when they consulted their reference books, and we believe it also roughly represents actual practice.

The data series for these variables are appended to the paper (see Table 4).

Content analysis method

Originally we relied on the indexes in each volume of *Montgomery* to identify the locations of relevant text, using words such as "defalcation" and "irregularity." The indexes proved incomplete, however, so a page-by-page scan was necessary. Some scholars deal with this problem by computer-scanning the source material and running a program to identify relevant items. But we could not identify any set of vocabulary that would catch the myriad of ways in which fraud detection could be addressed. A 1916 discussion of inventory valuation, for instance, says "It is about as bad to pass undervalues as overvalues where the result may be used in an ulterior manner," a comment that the human reader easily identifies as fraud-related, but one that is

difficult to identify for a computer program. And when an attempt is made deliberately to conceal the topic of discussion (an ironic problem to encounter in a study of fraud detection), as in the 1990 passage excerpted above in the section on the NEUTRAL/MIXED variable, the passage is probably unidentifiable by computer. It would be a daunting task to program a computer to detect subjects an author talks around.

Therefore, we scanned the pages of each volume manually (twice for the sake of reliability) and counted the number of lines of relevant text. For each volume, an average number of lines was determined for a typical page. The lines of text in any given section were counted and multiplied by the average words per line. For very long sections, the number of pages was counted, and multiplied by the number of lines per page and then by the number of words per line. This manual search was a lengthy chore, and a disadvantage of the method. On the other hand, this type of content analysis permits the study of complex and subtly-expressed professional issues.

RESULTS

The results of the content analysis should be considered in light of the changing specific statements in successive editions of *Montgomery's Auditing*. Before the series began, in the 1905 volume written by Dicksee and edited for an American audience by Montgomery, the "detection of fraud" was declared to be the first object of an audit. "… it can never be too strongly insisted," wrote the author, "that the auditor *may* find fraud concealed under *any* item that he is called upon to verify. His research for fraud should therefore be unwearying and constant" (p. 22; emphases in the original).

By 1912, as several observers have noted, the detection of fraud had been demoted to second place and was discussed as one of "the Minor Objects of an Audit." By 1949, fraud was not even mentioned as an object of the audit. Indeed, that year the chapter on Professional Standards and Responsibilities included a section on "Responsibilities not Assumed," which began:

> Discovery of Frauds: Experience shows that the great majority of the personnel of business organizations are honest. To exhaust the possibility of exposure of all cases of dishonesty or fraud in connection with examinations the chief purpose of which is to enable the independent public accountant to state his opinion with respect to the financial statements of a concern would require that the audit scope be extensively expanded. Moreover, even a most detailed examination of all transactions could not be relied upon to expose certain types of dishonesty. …

The 1975 edition saw a revival of interest in the subject of fraud, including an extended discussion in chapter 2 explaining all the reasons the auditor will probably not catch fraud or illegal activities. Still, the authors conclude that "[i]n summary, an auditor must have evidence affording a basis for concluding with reasonable assurance that the financial statements are free of material error, including deliberate misrepresentation" (p. 47).

Later chapters in the 1975 volume are much more equivocal. The section on confirmation of accounts receivable declares that "the purpose of those procedures is not so much to protect against possible fraud on the part of the client (although that possibility is clearly implied) as to preserve the integrity of the confirmation procedure as a valid proof of authenticity" (p. 250). As for the McKesson-Robbins inventory fraud case of 1939, the 1975 volume discusses it and its resulting procedures without mentioning the word "fraud" at all (pp. 413 ff.).

The last volume, in 1998, declared its interest in fraud detection immediately.

The book's second paragraph states that "[t]he most significant additional elucidation in recent years has been the further clarification of the auditor's responsibility for considering fraud in a financial statement audit" (p. ix).

This circle from forthright acceptance to denial and back to strong acceptance supports the U-shaped curve described in the literature for the professional treatment of fraud detection over the course of the 20th century. One of our research questions was whether quantification of the related text would find that U-curve.

Figure 1 shows the number of words asserting a fraud detection responsibility (RESPONSIBLE) and denying it (NOT RESPONSIBLE) by edition. Note that RESPONSIBLE does describe a U of sorts during the 1900s. The amount of text given to declaring a responsibility for fraud detection was about 4,300 words in 1912. It dropped to under 1,700 for the rest of the century, until 1998 saw it rise back to 2,400. It is an incomplete "U." This graph broadly supports the prior literature's qualitative assessment of the changes in the profession's approach to a fraud detection responsibility over the course of the 1900s.

One way of statistically capturing the parabolic relationship posited in the previous discussion is to define a second-order regression model (a quadratic model) with a single predictor, TIME. If the first slope coefficient in the estimated model is negative and the second one is positive, then the relationship between the number of words and the passage of time is likely a parabola that opens up (i.e., a *u* looking data pattern) consistent with the graphical illustration shown previously. The hypothesized model, then, is:

$$WORDS = \beta_0 + \beta_1 * TIME + \beta_2 * TIME\ SQUARED + \varepsilon,$$

where *WORDS* is the dependent variable, the number of words in any given series. *TIME* is the only predictor in the model and, finally, ε is the error term.

The data series are irregular. In other words, the books were not published at regular time intervals. We will therefore present our results using both regular and irregular time series. For the irregular times series, TIME will be measured as the passage of time from some reference point (a date prior to the first data point).[4]

Table 1 displays the statistical model for RESPONSIBLE. It shows that there is some evidence that the word count exhibits a parabolic relationship that is opening up. In the context of this discussion, we can state that early in the 20th century there was emphasis on "RESPONSIBLE." This emphasis seems to have subsided in the middle of the century but picked up again in the latter half of the century, as discussed above.[5]

But Montgomery (and the profession in general) simultaneously *denied* a professional responsibility to uncover fraud. This text is quantified in Figure 1's second graph, NOT RESPONSIBLE. NOT RESPONSIBLE is similar to RESPONSIBLE (correlation = 64%) in that it started at a high level in 1912 and later fell. But fewer words were spent denying than asserting responsibility (2,300 vs. 4,300 in 1912). In fact, NOT RESPONSIBLE nearly vanished from 1916 to 1934. It rose after that,

[4] We have a couple of reasons for the inclusion of regular time series models. One reason is that except for the time period of 1957-1975, the rest of the series are published within about a decade. Another reason is that it would be nice to see if the results differ dramatically. For the irregular time series models, the results are robust to the use of two different arbitrarily-chosen dates from which to measure the distance in time to each volume.

[5] Both models exhibit naturally high collinearity on the right hand side of the equation. In terms of statistical significance, the regular time series model does not seem to suffer considerably from this data problem in terms of both individual and joint significance. Even though the irregular time series model has statistically significant independent variables, the overall model itself is jointly insignificant. This is a paradoxical artifact of high degree of collinearity in the time variables. Two studies, Largey and Spencer (1996) and Martin (2008), discuss this theoretical case (significant t-tests but insignificant F-test). In fact the former calls it, "the odder" of the paradoxes (that arise on account of multicollinearity, i.e., significant F-test but insignificant t-tests and vice versa) and considers it "highly unlikely in practice!"

possibly in response to court cases such as McKesson-Robbins (1938) that threatened auditors with substantially increased fraud detection liability. Denials of responsibility continued to rise until 1975, even exceeding assertions accepting responsibility by 62% in 1957. By this measure, the nadir of the profession's acceptance of a duty to detect fraud was in 1957, as the Treadway and Cohen Commissions concluded (Commission 1978; National Commission 1987). It should be noted that the behavior of NOT RESPONSIBLE displays neither a statistically significant linear nor parabolic pattern.

NEUTRAL/MIXED language about detecting fraud was rare before the Great Depression (see Figure 2). Only after the stock market crash of 1929 and the related financial scandals and legislation[6] did *Montgomery's Auditing* introduce substantial amounts of equivocation about fraud detection. NEUTRAL/MIXED then declined again until 1975.

After 1975, the auditing profession responded to public pressure by slowly increasing its formal willingness to seek fraud. SAS 16 was issued in 1977, SAS 53 and the other "expectations gap standards" appeared in 1988, and SAS 82, the first to put "fraud" in its title, came out in 1997 (Gray and Moussalli 2006). But our content analysis finds that rising ambivalence accompanied this increased formal acceptance. A new edition of *Montgomery's Auditing* came out soon after each of these standards (1985, 1990, 1998), and in each one the amount of NEUTRAL/MIXED language was much higher than it had been in the earlier part of the century. The equivocating word count fell somewhat in 1998, perhaps due to the frankness of SAS 82, but it never approached the low levels of earlier decades. Statistically, NEUTRAL/MIXED is a

[6] E.g., the Ultramares case (1931), the Ivar Kreugar scandal (1932), and the securities acts of 1933 and 1934.

positive linear function of time (significant at the 0.01 level).

3-POSITIONS is an interesting variable (see Figure 3). It sums all the stated positions on the auditor's responsibility, whether supportive, denying, or ambivalent. It measures the series' overall interest in fraud detection as a formal audit goal. Here is the clearly U-shaped curve we originally expected. Discussion of one sort or another on the subject of the auditor's responsibility to detect fraud was high in 1912, very low in the years from 1916 to 1975, and then rose again from 1985 on. Recall that the Cohen and Treadway Commissions (Commission 1978; National Commission 1987), relying on qualitative evidence, believed the lowest interest in fraud detection occurred in mid-century. Our study, relying on the amount of attention given in the text to the subject, suggests that the nadir of overall interest in formal responsibility may have occurred well before World War II and that low levels persisted through 1975.

Both 3-POSITIONS quadratic models (regular and irregular) are statistically significant (see Table 2). In as much as 3-POSITIONS is comprised of three underlying series, RESPONSIBLE, NEUTRAL/MIXED, and NOT RESPONSIBLE, and neither the NEUTRAL/MIXED series nor the NOT RESPONSIBLE series can be explained by quadratic models, perhaps the behavior of 3-POSITIONS is driven by RESPONSIBLE. There is another possibility: TIME in a linear NEUTRAL/MIXED model is positively significant, but not significant in either the linear NOT RESPONSIBLE or RESPONSIBLE series. Thus, the results of the 3-POSITIONS model could be driven by the relative strength of RESPONSIBLE in the earlier part of the 20th century and by NEUTRAL/MIXED in the latter part of the 20th century. (This by itself however does not negate the impact of the right side of the U-shape of

RESPONSIBLE observed in the charts as well as in the regression models presented.)

In short, substantial discussion of fraud detection, dominated by assertions of responsibility, occurred in *Montgomery's Auditing* at the beginning of the 1900s, and then fell. At the end of the century, substantial discussion again occurred, dominated by ambivalent or neutral text, but including numerous assertions of responsibility as well.

The second question that an analysis of Montgomery's Auditing helps answer is the changing extent of the profession's interest in *implementing* fraud detection goals. Figure 4 graphs HOW-TO, the words in each edition that explain *how* an auditor should go about checking for fraud and what he should do upon discovering it. We find a very different pattern for HOW-TO from the patterns of the three positions variables. First, a linear model of the HOW-TO variable suggests that it is a negative function of TIME (see Table 3).[7] That is, the number of words describing how to detect fraud is declining over the years. This is particularly apparent if we control for the number of words in the different editions (see Figure 5).

But the most remarkable difference between HOW-TO and the positions variables is the sheer volume of HOW-TO in the first part of the century. Fraud detection techniques suffused the early editions of *Montgomery*. In fact, HOW-TO constituted more than 11 percent of the entire text in each of the first three editions. The number of words on the subject ranged from 31,000 to 65,000 in those early

[7] In the quadratic model for HOW-TO, both as a regular and irregular time series, TIME and TIME SQUARED are insignificant. The quadratic models suffer from multicollinearity, rendering both TIME and TIME SQUARED insignificant at any conventional significance (1, 5, and 10 percent level of significance).

volumes. In contrast, all three positions variables together totaled only from 900 words to 7,100 during the same years (see Figure 6).

At the drop of a hat in these early volumes, Montgomery threw in examples of fraud. A discussion of open accounts receivable includes the following: “An old item in a running account or a bill partly paid, followed by others fully paid, usually means that an allowance has been or will be made, or that a defalcation exists” (1916, p. 72). A discussion of unclaimed dividends notes that: “Where such a state of affairs exists, any payments out of the regular order should be noted, as it may be found that unauthorized payments are being charged thereto” (1916, p. 167).

The early Montgomery volumes had long sections devoted to explanations of fraud techniques and how to catch them. This sometimes included financial statement fraud, as in a 1921 discussion of the “failure to deduct expenses” before calculating “net income,” which stated that “business men will fool themselves, and corporation officers and directors will fool their stockholders and attempt to fool the public” (1921, vol. 1, p. 325). A discussion of “what vouchers to examine” in 1921 (vol. 1, pp. 542-548) began with a warning that auditors have “many more important things to do in an audit” than examining vouchers and that a good system of “internal check” obviates the need to examine them in detail. But this is followed by five *pages* of examples of fraud which had been or should have been caught by checking the vouchers.

In 1927, the amount of HOW-TO text fell below 10 percent for the first time, falling to just over 26,000 words from over 65,000 in the previous edition. It rebounded somewhat in 1934 and 1940. Perhaps the innumerable financial peccadilloes of the Roaring ‘20s, revealed by the stresses of a subsequent prolonged depression, caused Montgomery to re-focus on fraud. Indeed, the second sentence of his 1934 preface (p.

iii) notes that "the economic adversities that befell the country laid bare or emphasized much in American business practice that is unsound and even reprehensible and there has been a general demand … for increased scrutiny of the accounts of businesses by competent independent auditors…"

After World War II, Montgomery's interest in fraud detection methods again dropped, as Figures 4 and 5 show. And after he died in 1953, his successors never devoted more than 3 percent of their attention to fraud detection. Indeed, HOW-TO constituted only 1.4% and 1.6% of the 1975 and 1985 editions respectively, in absolute words almost as low as the 3-POSITIONS measure (see Figure 6). When SAS 53 and SAS 82 (in 1988 and 1997) re-emphasized the goal of fraud detection, HOW-TO rose again (in the 1990 and 1998 editions), but not nearly to the heights it had attained at the beginning of the century.

The nature of the discussion, too, changed in these later decades. Even when methods of fraud detection were discussed, there were seldom any examples, the purpose of the technique (to discover fraud) was often mentioned only indirectly, and fraud was only presented – briefly – as one of a list of possible problems. For instance, the 1985 discussion of observation of inventories began: "since the *McKesson & Robbins* case precipitated the issue in 1939" (p. 626) – that is, there was no direct mention of the fact that the case concerned an inventory fraud. The 1998 edition's discussion of conducting balance-sheet-date inventories mentions fraud only once, in the following passage: "in the absence of control activities to protect the inventory, the auditor would have no assurance that unrecorded additions or deletions – whether approved or not – did not occur in the period between an interim count date and year-end" (pp. 9-12).

DISCUSSION AND CONCLUSIONS

This study quantifies the amount of attention given to four fraud detection variables in the *Montgomery's Auditing* series over the course of the 20th century. We find that the sum of words in statements expressing a position on a fraud detection responsibility, whether affirmative, negative, or ambiguous, was very high in the first part of the century, low from 1916 to 1975, and high again in the last decades. Denials of responsibility were lower than affirmations until 1940, but from then until 1990, the amount of text devoted to the two positions was roughly equal. Ambivalence was uncommon until the last two decades, when it rose to substantial levels.

The three positions variables together describe a roughly U-shaped graph (see fig 3), as prior literature, using qualitative evidence, has found. That is, overall interest in fraud detection as a goal was higher at the beginning and end of the century than in the middle decades. However, the nature of that interest differed in the early and late time periods. In the early 1900s, the high interest was expressed by statements asserting responsibility for fraud detection (see Figure 1). In the last decades, a great deal of interest also existed, but it was expressed in a mix of ambivalent and positive statements (see Figure 2). This suggests that the profession, as represented by the *Montgomery* series, approached the late-century imposition of fraud detection responsibilities half-heartedly.

The three positions variables roughly track the profession's formal position on a fraud detection responsibility. This is especially true in the last quarter of the 1900s, when authoritative bodies in the United States began setting formal audit standards on fraud. The American Institute of Certified Public Accountants (AICPA) issued SAS 16, "The Independent Auditor's Responsibility for the Detection of Errors or

Irregularities" in 1977; SAS 53, "The Auditor's Responsibility to Detect and Report Errors and Irregularities," in 1988; and SAS 82, "Consideration of Fraud in a Financial Statement Audit," in 1997. Each statement was longer than the last, beginning with 11 pages for SAS 16, then 18 pages for SAS 53, and 45 for SAS 82. That is, the official standards devoted more time to the subject of a fraud detection responsibility in the last part of the century, just as *Montgomery* did.

A number of observers have attributed the early- to mid-century decline in acceptance of a fraud detection requirement to the legal and public blame borne by accountants for scandalous financial frauds perpetrated by various company managements (see, e.g., Clikeman 2009; Gray and Moussalli 2006). This paper finds a lull in denials of an obligation to discover fraud beginning in 1916 (see Figure 1). Subsequent to the McKesson Robbins case of 1938, denials rose again, which offers some support for the claim that outcries and court judgments over financial scandals drove the profession's denials.

In contrast to the U-shaped curve described by the 3-POSITIONS variable, material explaining *how to* detect and report fraud does not describe a "U" at all. It was voluminous until mid-century. Then it plummeted in the second half of the century (see Figure 4).

Robert Montgomery died in 1953. Was this dramatic decline in HOW-TO simply the result of the change in authors? We think not, for several reasons. As early as 1927, Montgomery acknowledged in his prefaces substantial assistance with the manuscripts from other accountants in his firm. Long before he died, *Montgomery's Auditing* was in reality a copyrighted brand name for a textbook used as an auditing practice manual by many accounting firms. Montgomery's name was on the cover, but

others did much of the writing.

Furthermore, other scholars provide supporting evidence that attention to fraud detection techniques was much more common in the early 1900s than in the later decades. Recall Brown's 1962 observation that despite the denial of fraud detection *responsibility* in the 1940s and 1950s, numerous fraud detection *techniques* were in fact designed in those years. This supports the present study's findings of low textual attention given to the three types of fraud detection *positions* in the 1940s and 1950s, in contrast to high attention to fraud-detection *methods* in the 1940s. Also recall the surveys conducted in 2000 and 2005 by Armitage (2008). He found that, while auditing faculty considered it important that students be aware of the possibility of fraud, they thought it not particularly important that the students learn techniques to discover it. This is similar to our finding that in the 1990s, *Montgomery's Auditing* spent substantial time discussing fraud detection *goals*, but not much time (compared to the early decades) discussing fraud detection *techniques*.

Could it be that the later editions of Montgomery in effect out-sourced discussion of fraud detection techniques to the official standards, just referring briefly to techniques that the AICPA described in more detail as it issued official pronouncements? Again, we think not. SAS 16 contained a total of 3,961 words, SAS had 5,346, and SAS 82 had 14,127. Even if all of those words concerned nothing but descriptions of fraud detection techniques (which is not the case), the *Montgomery* volumes in the same years still had more words on HOW-TO than did the official pronouncements (see Figure 6). That is, Montgomery was still the more complete reference work in the last quarter of the 20th century.

In short, we find that when the 20th century began, *Montgomery's Auditing*

treated fraud detection as an important goal and also spent a lot of space teaching readers how to accomplish it. By 1916, goals and techniques had diverged. The series lost interest in fraud detection as a formal goal, but continued heavy emphasis on how to detect fraud (29,900 words in 1940, for example). In 1957 and 1975, the books finally lost interest in HOW-TO as well. Indeed, the 1975 volume had roughly the same number of words devoted to detection techniques (4,100) as to all three types of positions statements (3,900). Goals again diverged from techniques beginning with the 1985 volume. In that and the next two editions, the series renewed its stated interest in fraud detection but did not support that formal position with information directly explaining how to accomplish the goal, as compared to such information in the earliest decades of the series.

How to account for this pattern? Possibly, the auditing profession's interest in implementing fraud detection lags its formal acceptance of a fraud detection responsibility. Thus, it took several decades in the early 1900s for the profession to shake off its habit of looking for fraud after it had formally abandoned the objective. Then, in the last decades of the century, when the profession re-embraced the goal of fraud detection, it did not immediately re-adopt its detailed attention to techniques of detection. If techniques simply lag formal goals, then we expect that the fraud SASs of recent years, particularly SAS 99 in 2002, will be followed by a rise in attention to fraud detection techniques over the next ten or twenty years. Indeed, we noted extensive recent anecdotal evidence of just such a trend in an earlier paper (Gray and Moussalli 2006).

Or perhaps the profession will not seriously re-embrace fraud detection practices. Humphrey and Turley argue (1993) that history suggests the public's

expectations of auditors will continue to be unmet (p. 57). They even argue that auditors, in effect, protect against detection. If so, then the pattern we find in *Montgomery's Auditing* is not a lag in re-development of techniques but an abandonment of serious interest in the topic. The half-heartedness indicated by the late-century rise in ambivalent language (see Figure 2) about fraud detection goals is mirrored by *Montgomery*'s lack of attention to technique.

That is, it may be that when *Montgomery's Auditing* stopped talking about fraud detection techniques in the post-war years, it was because the profession was just not as interested in the topic as it had once been. In this interpretation, the late-century rise in the sum of the three positions variables (see Figure 3) was forced on the profession by the demand that it once again adopt fraud detection responsibilities. Therefore, the profession necessarily became interested in the goal, although its interest was ambivalently expressed more often than not. However, words were not accompanied by deeds, if this content analysis of the reference work *Montgomery's Auditing* is any indication. By this measure, the profession paid far less attention at the end of the 1900s to promoting specifically-targeted fraud detection techniques than it had before World War II.

In 1987, the Treadway Commission said that "independent public accountants can and should do more to improve their detection capabilities" (National Commission p. 49). As a normative recommendation, this should be at least as achievable today as it was in the early 20th century, when *Montgomery's Auditing* so thoroughly and voluminously gave plain examples of fraud and its discovery in an audit. That is, the enduring public expectations of a fraud detection function in audits, followed by the promulgation of standards requiring such activity, need to be supported by extensive

attention to practical techniques of fraud detection. *Montgomery's Auditing* demonstrates that standards and practices can in fact be closely meshed.

But over the decade following the Treadway report, our research suggests that empirically, auditors did not seriously follow its recommendations on fraud detection capabilities. And if the profession's inattention to techniques of fraud detection persists, then the expectations gap will persist, too, and auditors and the public are doomed to eternal mutual dissatisfaction.

LIMITATIONS

Our findings are limited in several ways. The first, a methodological issue, is that content analysis relies on judgment of the coder, the more so as we did not use a computer program to code the text. For reasons discussed in the methodology section, we believe computerized searching of the text would be less effective in identifying the relevant text than was hand-coding. However, we acknowledge that such judgmental classification may yield results that are less reliable than mechanical classification and does not lend itself to as much quantitative analysis.

The second limitation inheres in our research design. The *Montgomery* series, despite its prominence and influence as a leading reference work, is not a perfect proxy for professional practices, especially for the profession's actual fraud detection efforts (as opposed to its explicit fraud detection goals). Indeed, in light of the fact that analysis of the *Montgomery* series can only roughly approximate professional practice, applying a veneer of detailed statistical analysis of the sort permitted by computerized coding of the text could lend only pseudo-exactitude to our evidence. Our findings are appropriately limited to the broad changes in fraud detection goals and practices, and the divergence between goals and practices, that we have

described.

An additional problem with using *Montgomery's Auditing* is that it may have been unrepresentative of the profession's intentions and practices during part, but not all, of the 20th century. However, all historical sources are flawed in some way. The prominence and length of the series make it a better proxy than other series for professional audit practices and interests. The present study is merely the first to try to quantify the changes in U.S. audit practice over the course of the 20th century. We hope that other scholars may use different measures, based on different proxies for these phenomena, to further investigate the question of the profession's changing levels of devotion to fraud detection.

A third limitation of our findings results from our general approach. Studies of the development of professional standards typically use conventional historiographical methods. The scholar ties official pronouncements to a wide range of contemporaneous literature, including professional magazine articles, speeches, diaries, and legislative and executive branch documents, in an attempt to identify the genesis of institutionally-supported standards. Such studies can provide invaluable illumination of how professional standards are generated and of who the numerous players involved are, their various concerns, and their relative power. When well-done, such studies are both very useful and quite time-consuming.

Our study, in contrast, attacks a different though related problem with a narrower method. We are interested in finding some way to measure what the auditing profession *did* and *believed* about fraud detection, not just what it formally declared as its goals. We assume that people reveal information in their writing other than what they directly intend to say. An intensive quantitative content analysis of one

highly influential source - the *Montgomery's Auditing* textbook series – reveals, we believe, something about the profession's interest in its stated goals and something about its interest in implementing those goals.

Ultimately, the two approaches – on the one hand, a study of the formal standards of a profession and the debates that led to them, and on the other hand a study of the profession's *handling* of these standards, of its *attitude* to them – are both required to understand how a profession approaches its problems. The two approaches illuminate different aspects of a complex professional phenomenon. This paper offers evidence about the second aspect. We await with interest other scholars' further explorations of the first.

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APPENDIX

Table 4. Data series: Number of words concerning four basic variables* of fraud detection, and total words, by edition of *Montgomery's Auditing*.

Edition	RESPONSIBLE	NOT RESPONSIBLE	NEUTRAL / MIXED	HOW-TO	Total words
1912	4,299	2,305	506	31,135	226,255
1916	344	34	571	35,431	215,144
1921/22	1,688	38	1,301	65,242	434,094
1927	1,267	64	900	26,420	292,787
1934	867	77	3,050	34,726	281,736
1940	1,219	905	2,000	29,868	247,652
1949	712	808	1,177	19,563	221,444
1957	877	1,425	1,133	8,999	294,178
1975	1,613	1,614	680	4,130	292,320
1985	1,073	518	8,038	9,926	621,720
1990	771	968	8,951	18,765	564,980
1998	2,428	1,323	4,782	17,322	646,282

***** RESPONSIBLE=number of words explicitly asserting auditor's responsibility to detect fraud. NOT RESPONSIBLE=number of words explicitly denying auditor's responsibility to detect fraud. NEUTRAL/MIXED= number of words discussing goal of fraud detection so ambiguously that it cannot be classified as accepting or denying responsibility. HOW-TO=number of words explaining audit procedures with explicit or clearly implicit expression of fraud detection purpose. Total words=total words in volume, excluding table of contents and index.

NB: We created these data series through the content analysis described in this paper. Other scholars are welcome to use the data; we ask that they acknowledge our authorship of these original data.

Figure 1. Words asserting and denying fraud detection responsibility, by *Montgomery* edition.

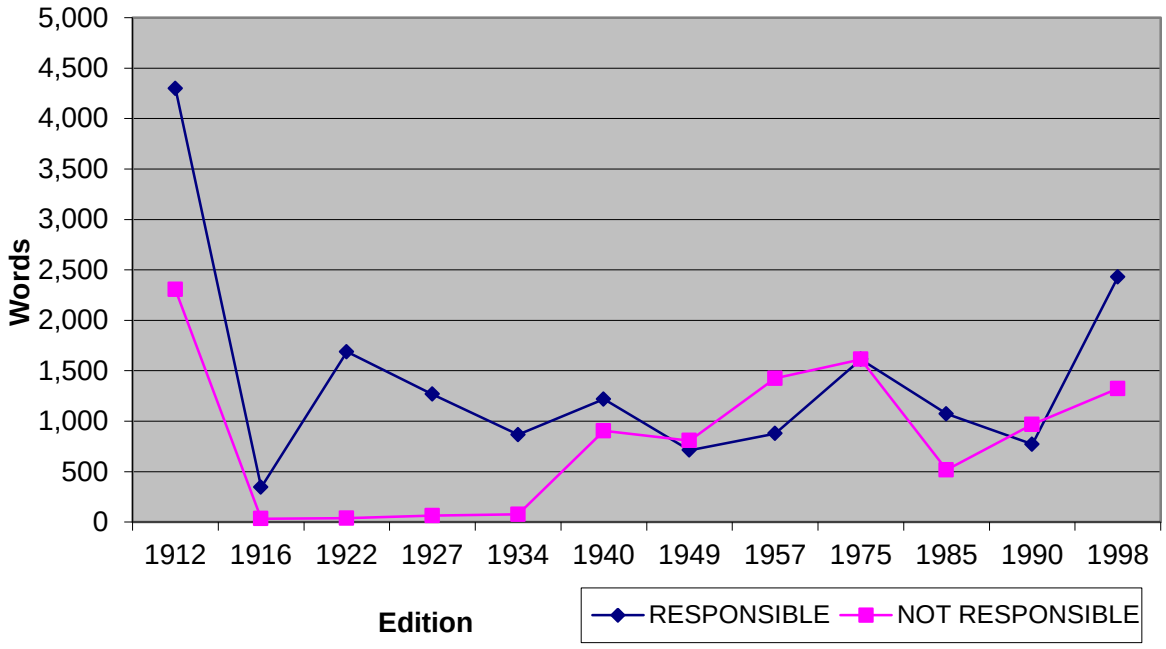


Figure 2. Words expressing neutral or ambivalent views of fraud detection responsibility, by *Montgomery* edition.

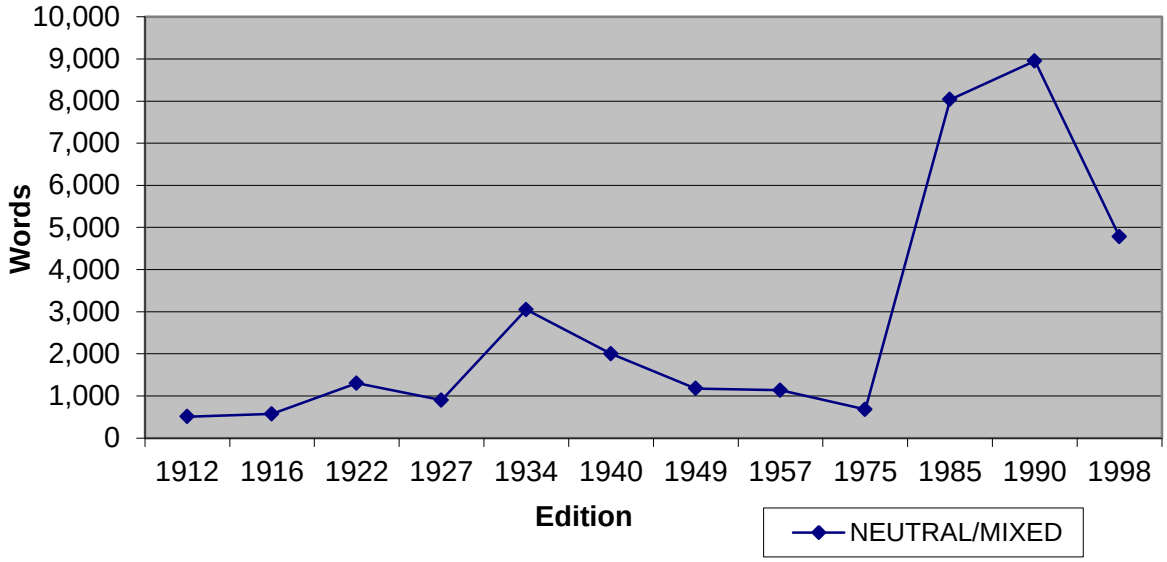


Figure 3. Sum of words on 3 fraud detection positions, by *Montgomery* edition.

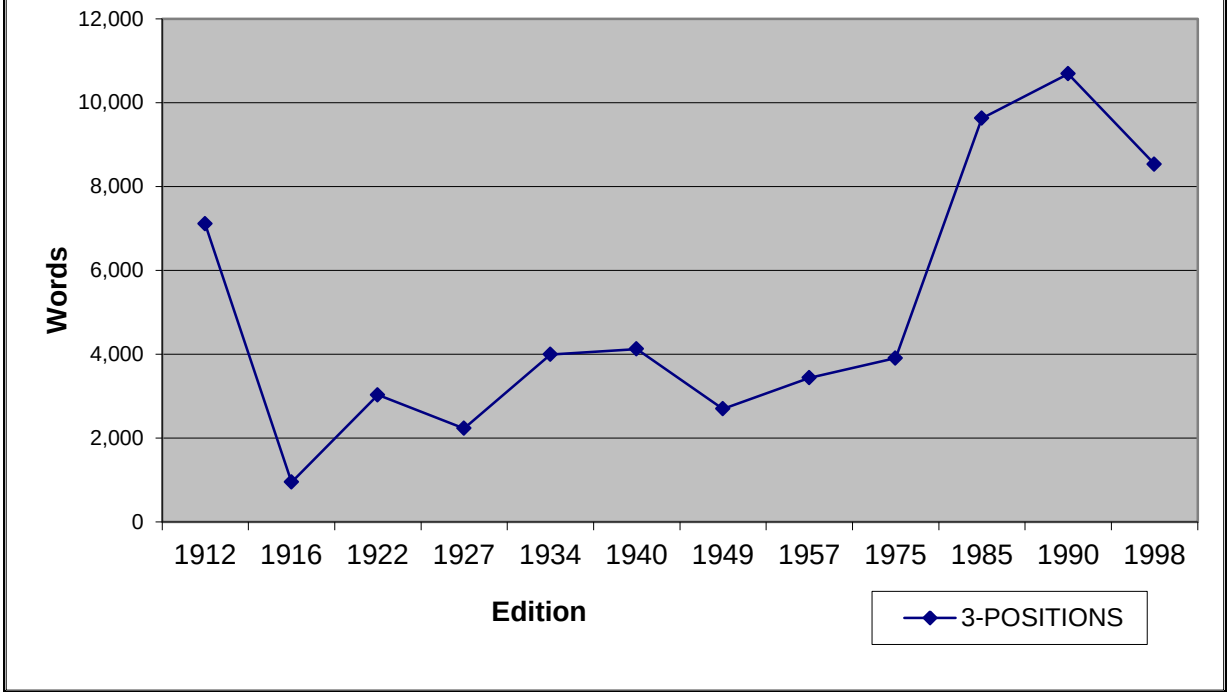


Figure 4. Number of words on how to detect fraud, by *Montgomery* edition.

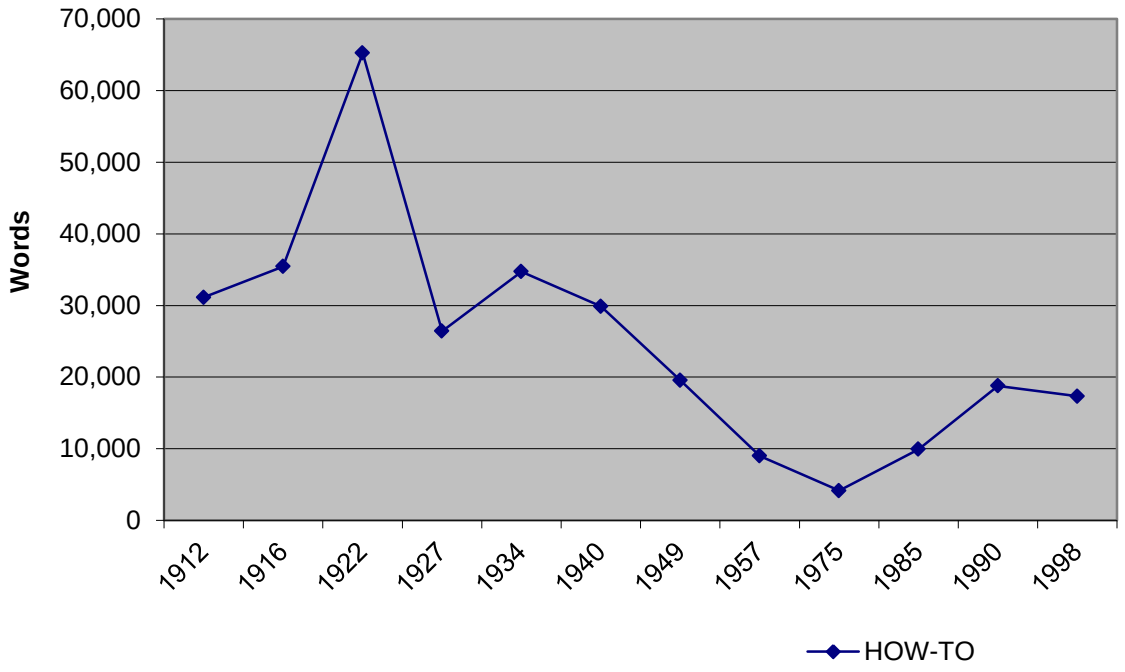
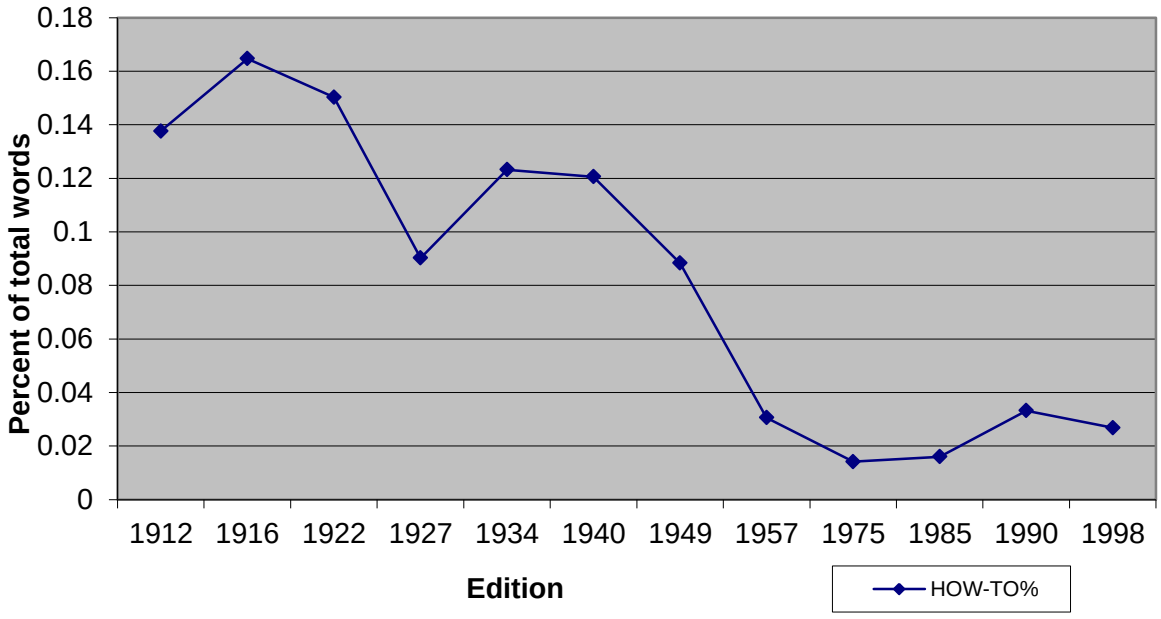


Figure 5. Percent of text concerning methods of fraud detection, by *Montgomery* edition.



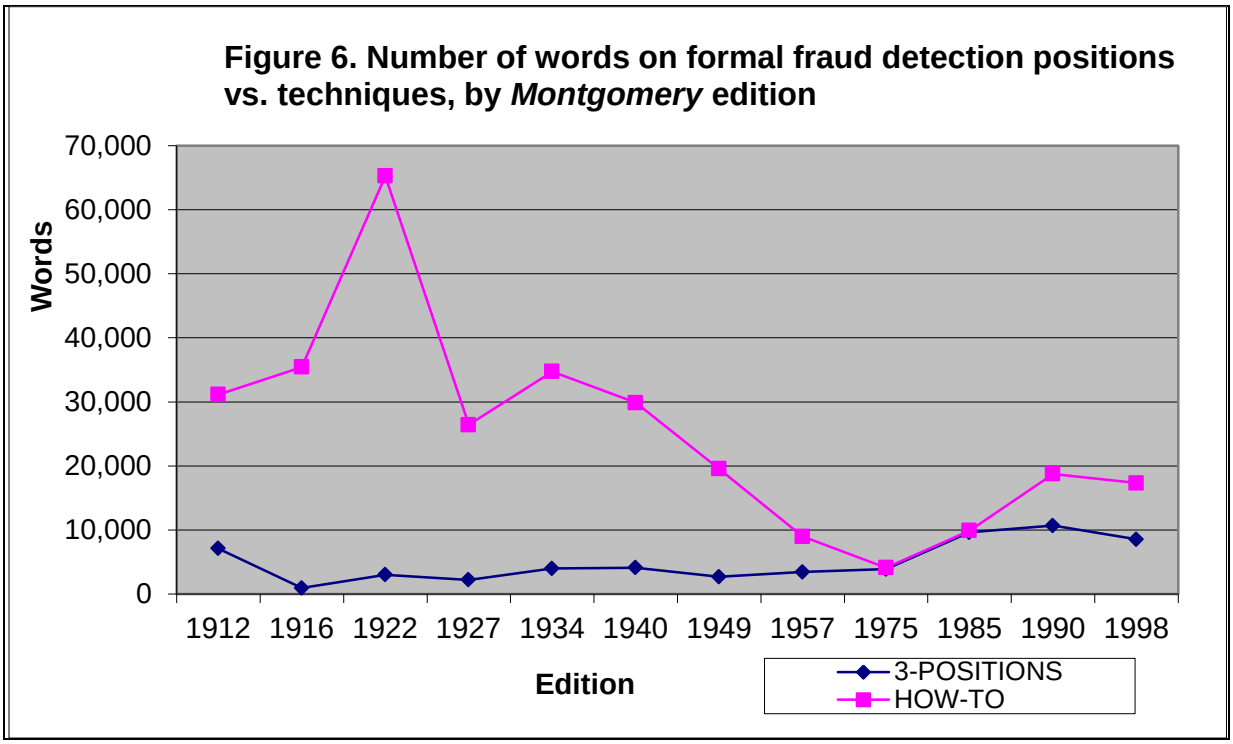


Figure 6. Number of words on formal fraud detection positions vs. techniques, by *Montgomery* edition
Words
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
1912
1916
1922
1927
1934
1940
1949
1957
1975
1985
1990
1998
Edition
3-POSITIONS
HOW-TO

Table 1. Quadratic model for RESPONSIBLE word count.

	DEPENDENT VARIABLE: "RESPONSIBLE" WORD COUNT			
	REGULAR TIME SERIES		IRREGULAR TIME SERIES	
VARIABLES	COEFFICIENT	P-VALUE	COEFFICIENT	P-VALUE
INTERCEPT	3648.55	0.00	3599.86	0.01
TIME	-827.31	0.03	-102.57	0.06
TIME SQUARED	58.32	0.04	0.89	0.07
R-SQUARE	0.43		0.33	
P-VALUE for OVERALL MODEL	0.08		0.16	

Table 2. Quadratic model for 3-POSITIONS word count.

	DEPENDENT VARIABLE: THREE POSITIONS WORD COUNT			
	REGULAR TIME SERIES		IRREGULAR TIME SERIES	
VARIABLES	COEFFICIENT	P-VALUE	COEFFICIENT	P-VALUE
INTERCEPT	6095.64	0.02	5869.01	0.03
TIME	-1424.52	0.09	-156.70	0.16
TIME SQUARED	151.22	0.02	2.09	0.05
R-SQUARE	0.66		0.67	
P-VALUE for OVERALL MODEL	0.01		0.01	

Table 3. Linear model for HOW-TO word count.

	DEPENDENT VARIABLE: "HOW TO DETECT"	
	REGULAR TIME SERIES	
VARIABLES	COEFFICIENT	P-VALUE
INTERCEPT	43780.25	0.00
TIME	-369.98	0.01
R-SQUARE	0.47	
P-VALUE for OVERALL MODEL	0.01	

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