Business Busts and U.S. Auditors' Interest in Fraud Detection: Evidence from the 20th Century

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Abstract

We find evidence that U.S. auditors increased their attention to fraud detection during or immediately after the economic contractions of the 20th century, based on a content analysis of the 12 volumes of the 20th-century auditing reference series *Montgomery's Auditing*. Contractions, however, do not seem to have affected auditors' attention to the formal goal of fraud detection. The study suggests that auditors' aversion to the heightened risks of fraud during economic downturns leads them to focus more on fraud detection at those times regardless of the particular guidance in formal audit standards. This study is the first to find some evidence of a recession-influenced difference between fraud detection practices and formal fraud detection goals.

Introduction

The economic adversities that befell the country [in the Great Depression] laid bare or emphasized much in American business practice that is unsound and even reprehensible and there has been a general demand by investors, credit grantors, stock exchanges and regulatory bodies for increased scrutiny of the accounts of businesses by competent independent auditors with the purpose of preventing a recurrence of such unsound practices.
  - *Robert Montgomery, 1934*

Business cycles affect many human behaviors, from birth rates (Sobotka *et al.*, 2011) to elections (Fair 2002). Do they also affect audit procedures? Our data suggest the answer is yes. Specifically, we find some evidence that, during or just after the economic contractions of the 20th century, U.S. auditors increased their attention to techniques designed to detect fraud. Contractions do not seem to be associated, however, with changes in auditors' attention to formal fraud detection standards. That is, hard economic times appear to affect audit procedures but not formal audit standards, at least in the short run.

This research responds in part to recent prominent calls for more work on emerging issues in fraud research, particularly of a sort relevant to audits and fraud investigations (Brody *et al.*, 2012). The 2011-2012 AAA president, Gregory Waymire, chose the need for "innovation in accounting scholarship" as the strategic theme for his presidency (Waymire, 2012, p. 817), including research that is relevant to practice (McCarthy, 2012, pp. 834-845 and inter alia; see also Granof and Zeff, 2008, and Kaplan 2011; for an example of such research see Brazel, Jones, & Zimbelman, 2009). Specifically, Kalbers (2009, p. 202) calls for "understanding of business cycles and peculiarities within certain industries [to] focus research on understanding contexts within which motivations for earnings management or fraud may be stronger or weaker." Because fraud affects public confidence in entities as diverse as stock markets, auditors, bankers, corporate executives, and government (Sanders & Hamilton, 1997), auditors' responsiveness to

fraud is both interesting and critical.

We begin by laying out our argument in the context of prior literature on the coincidence of fraud and the business cycle, along with the relevance of loss aversion to auditor behavior. Next, we describe our method, variables, and data sources – the use of a content analysis of the audit reference series *Montgomery's Auditing*[1] (published in 12 volumes from 1912 to 1998), examined in relation to the contractions and expansions of the U.S. economy that occurred over the 20th century. Finally, we report and discuss our results, including both our main finding that recessions appear to increase auditors' attention to fraud detection techniques, as well as our finding that economic downturns do not seem to systematically affect the profession's formal standards concerning a fraud detection responsibility.

The Research Question in the Context of Prior Literature

There is a small body of research indicating that fraud itself varies with the business cycle. In a study of Italian crime reports from 1979 to 2004, Detotto and Otranto found that fraud reports increase during declines in GDP (2012). They attribute the rise to an increase in the incentives for people to commit fraud during recessions. Povel *et al.* (2007), however, believe fraud – especially financial statement fraud – occurs most often near the end of a boom, while the subsequent bust simply reveals it (p. 1219). Kalbers (2009) agrees with the latter view, arguing that failing firms are likely to commit fraud in "pre-bankruptcy" years (p. 194) and that "fraudulent financial reporting increases during economic booms as managers attempt to match the accomplishments of other firms and as the bubble begins to become unsustainable" (p. 202).

Povel *et al.* (2007) develop a model for fraud and the business cycle that views financial statement fraud as a function of investor incentives. During booms, when investors are searching

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[1] The bibliographic citations for all the *Montgomery* volumes used appear in the reference list. The series had different names over the course of the 20th century. For convenience, we refer to it by its common name, *Montgomery's Auditing*, or just *Montgomery*.

for companies to fund and they expect to see generally good times, they will not insist on close monitoring of their investees' reports – unless the reports show the firm is struggling. This provides both the opportunity and the incentive for some managements to manipulate their financials fraudulently, especially when the end of a boom looms and weaker firms experience declining performance. On the other hand, during an economic downturn, chastened investors demand closer monitoring of their investees, making financial statement fraud much riskier for companies (1221-1222).

The public has considered the detection of fraud to be the main purpose of an audit for millennia (Clikeman, 2009, pp. 123-125; Gupta and Ray, 1992). Historically, auditors have been markedly less enthusiastic (Clikeman, 2009; Commission on Auditors' Responsibilities, 1978; Gray and Moussalli, 2006; Lee *et al.*, 2009). Indeed, they have at times actively opposed such a goal (Humphrey *et al.,* 1993; Moussalli *et al.,* 2012, p. 89).

In a previous paper, we reported evidence that auditors varied their attention to both formal standards as well as techniques concerning fraud detection over the 20th century (Moussalli *et al.,* 2011). Explanations for these changes in attention to formal fraud detection goals typically focus on the history of the profession's reactions to revelations of momentous financial statement frauds (Clikeman, 2009; Gray *et al.,* 2006; Heier *et al.,* 2005; Jaenicke, 1977; Lee *et al.*, 2009; O'Reilly *et al.*, 1990, pp. ix-x; Moussalli *et al.,* 2012; Previts and Merino, 1998, pp. 367-378). But good explanations for the variations in the concern for fraud detection *techniques* are lacking.

The question for this paper is: *Do auditors vary their attention to fraud detection – whether techniques or formal goals or both – in response to business cycles?* Anecdotally, they sometimes assert that they do. Practically, it would be reasonable for auditors' interest in fraud

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detection to be related to the business cycle if fraud itself is also related to booms and busts.

Current professional standards in the United States require, in a few brief words, that auditors consider "general economic factors" and a situation of "increasing business failures" in the overall economy as risk factors (AS 12, paragraphs 7 and 9; AU 316.85 paragraph A2). But it was not always so. During the 20th century, auditors sometimes eschewed fraud detection as a formal goal of the audit regardless of the business climate (National Commission, 1987).

If economic downturns do in fact raise the risk of fraudulent misstatement and therefore the potential for audit failure, prospect decision theory would predict that auditors will be more attentive to fraud detection during hard economic times even in the absence of standards requiring such attention. Prospect theory, introduced in 1979 by Kahneman and Tversky, and recently described as "the most successful behavioral model of decision-making under risk and uncertainty" (Tom *et al.,* 2007), argues that people are more averse to the possibility of loss than they are attracted to the possibility of gain. Subsequent studies have generally estimated people's aversion to potential loss to be about twice as strong as their attraction to gain (Dickhaut *et al.*, 2010, pp. 222, 243; Rabin, 2000, p. 1288; Tom *et al.,* 2007, p. 515). This aversion demonstrably affects decisions made under the threat of loss. In light of the pervasive risks presented by economic downturns, we predict that prospect theory is right: auditors will be more attentive to fraud detection in a recession regardless of what they formally state they will do.

At the same time, we argue that, in order to survive or legitimize their conduct, auditors will be more attentive to fraud detection because in a recession, when people become more critical of auditors' role. This phenomenon can be explained by legitimacy theory which suggests that organizations (including audit professional bodies) conform to the expectation of the society in which they operate (Dowling & Pfeffer, 1975). Society confers legitimacy upon

organizations (including accounting and audit professional bodies), where legitimacy is defined as ''a condition or status which exists when an entity's value system is congruent with the value system of the larger social system of which the entity is a part" (Lindblom, 1993, p. 2). Organizational legitimacy is, therefore, a resource on which organizations depend for their existence or survival (Dowling & Pfeffer, 1975). Organizational existence will be threatened or even eliminated if society withdraws its support. For example, Arthur Andersen's failure to meet societal expectations in the Enron case was perceived as so severe that the firm was eliminated (Carnegie and Napier, 2010).

Hines (1989, 1991) argued that legitimacy was the critical resource when the US accounting profession developed a conceptual framework. She argued that a conceptual framework provided a "symbol of objectivity and professionalism". She added that conceptual frameworks provide a means of increasing the ability of a profession to self-regulate, thereby offsetting the likelihood that government intervention will occur. Similarly, in this paper we argue that during economic downturns, there is widespread stakeholder or societal criticism that audit authorities fail to meet their obligations (Arnold and Sikka, 2001; Cooper & Catchpowle, 2009) and in response to such criticism, auditors will change their audit procedures. Such responsive behavior of auditors is consistent with legitimacy theory.

Data Method and Variables[2]

To investigate changes in U.S. auditors' interest in fraud detection, we performed a detailed content analysis[3] of the *Montgomery's Auditing* series.

Montgomery's Auditing was published in 12 editions from 1912 to 1998. As the standard reference work for the U.S. auditing profession during the 20th century (Commission, 1978, p.

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[2] See table 1 for a list of variable definitions.
[3] See Hodson 1999 for a discussion of the content analysis method.

33), it has been used as primary source material in many prior historical studies (Brown, 1962; Chandler *et al.,* 1993; Clikeman, 2009; Commission, 1978; Gray and Moussalli 2006; Hackett and Mobley, 1976; Heier *et al.,* 2005; Moussalli *et al,* 2011, 2012; Myers, 1985; Nouri and Lombardi, 2006).

Robert Montgomery was a founder of one of Price Waterhouse Cooper's predecessor firms (Lybrand, Ross Bros. & Montgomery), a two-term president of the American Institute of Certified Public Accountants' predecessor organization, and a founder of the *Journal of Accountancy*. He was one of the creators of the first U.S. authoritative standards of accounting and auditing in 1917 and the first income tax act in the 20th century (Zeff, 1987). What Montgomery thought and wrote about auditing was considered authoritative. He was the lead author of the *Montgomery's Auditing* series, in collaboration with his colleagues, until his death in 1953. His colleagues continued the work until the end of the century (Moussalli *et al.,* 2011).

Changes in the content of *Montgomery's Auditing* are an imperfect proxy for changes in U.S. auditors' attitudes. However, *Montgomery* was a widely-used reference work and practical manual for practicing auditors (Commission, 1978, p. 33) in the United States during the 20th century. We believe that it represented the views of the profession well enough to fairly measure broad changes in those views as well as in generally accepted auditing practices over the course of the 20th century.

Our content analysis identified three variables in the *Montgomery* texts that are useful to this paper: the amount of text concerned with practice – that is, examples and guidance on fraud detection *techniques*, and two variables that in some way discuss the detection of fraud as a *goal* of the audit (see detailed descriptions below).

We counted the words concerning these variables (twice for consistency) in each volume.

This required a lengthy manual scanning of every volume, since text referring to fraud detection often did not use the word "fraud" or its synonyms. When a relevant section was identified, we counted the lines devoted to it and multiplied by the average words per line for that volume. We controlled for the length of the individual volumes, which varied substantially over the century, by calculating each variable as a percentage of the total text in the volume. The below three variables are our *dependent* variables:

HOW TO DETECT: This variable is the percentage of the text explaining how the auditor should go about detecting fraud. In 1916, for instance, Montgomery noted (p. 167) that the existence of unclaimed dividends made it wise to note "any payments out of the regular order …, as it may be found that unauthorized payments are being charged thereto". Such material was voluminous in comparison to the formal positions variables, described next.

RESPONSIBLE: This variable is the percentage of the text explicitly asserting the auditor's responsibility to detect fraud. Included are direct statements such as this one from the first edition: "The elementary or minor objects of an audit are: (1) The detection of fraud" (p. 10). Any discussion of legal responsibilities that clearly states or implies the author's agreement, as well as text concerning the auditor's responsibility for detecting and reporting illegal acts, are also included in this variable.

3-POSITIONS: This variable is the total percentage of the text that 1) explicitly asserts the responsibility to detect fraud (i.e., the *RESPONSIBLE* variable), or 2) explicitly denies such a responsibility (e.g., the "auditor is not an insurer" and arguments for that position), or 3) discusses the goal of fraud detection in such an ambivalent or even euphemistic way that it was not possible to classify it as accepting or denying responsibility.

The logic behind the 3-*POSITIONS* 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. 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. [4]

The passages in *Montgomery* that we count in *RESPONSIBLE* are widely accepted in the literature as a valid measure of the American auditing profession's formal stance on fraud detection (Brown, 1962; Chandler *et al.,* 1993; Clikeman, 2009; Commission, 1978; Hackett and Mobley, 1976; Heier *et al.,* 2005; Myers 1985; National Commission, 1987; Nouri and Lombardi, 2006). The *HOW TO DETECT* variable, on the other hand, may not measure fraud detection practices so directly. It might be argued, for instance, that authorial idiosyncrasies explain part of the variation in *HOW TO DETECT*. 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, an observation that our data for the 1949 and 1957 editions support. Furthermore, *HOW TO DETECT* measures what professional leaders thought students and practitioners should learn when they consulted their reference books; we believe it also reflects actual audit practice.

The six *independent* variables (some of which are used solely to check the robustness of our results) represent the business cycle and are based on the National Bureau of Economic Research series for business cycles.[5] This series lists the peak and trough months for every economic cycle from 1854 to the early 2000s. Descriptions of these explanatory variables

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[4] We are indebted to Frances Dunham, professor emeritus of psychology at the University of West Florida, for suggesting this part of the analysis.
[5] Economic cycle data are taken from www.nber.org/cycles.html. At that site, the NBER defines a recession as "a significant decline in economic activity spread across the economy, lasting more than a few months, normally visible in real GDP, real income, employment, industrial production, and wholesale-retail sales."

follow:

CONTRACT24 is an independent variable that indicates decline in any month or months out of the 24 months prior to the year in which a volume was published. This is an indicator variable coded 0 if no contraction occurred and 1 if a contraction did occur. Our reasoning for this is that the *Montgomery* editions were written in some period of time before the year of publication. If a recession occurred during or shortly before the writing of a volume, we believe it may have affected what was written about fraud detection. The 1957, 1985, 1990, and 1998 volumes were coded "0" by this definition, meaning that no downturn occurred within the 24 months preceding the publication of any of those editions. All of the other volumes were coded "1" (see table 2).

%CONTRACT24 is the percentage of months of economic decline that occurred in the 24 months prior to the year in which a volume was published. This is an alternative definition of the *CONTRACT24* variable for robustness purposes. We assumed that a longer recession might affect auditor behavior more than a short one; this variable might therefore capture an effect not apparent with the *CONTRACT24* dummy variable.

MAJORITY CONTRACT24: This is also a dummy variable, coded 0 if fewer than half of the 24 months prior to publication saw an economic decline and 1 if half or more of the months were contractions. This variable is also designed for robustness purposes.

The other three independent variables are alternate measures based on 18 months before publication instead of 24: *CONTRACT18*, *%CONTRACT18*, and *MAJORITY CONTRACT18*. Once again, the idea is to make sure that our results are robust because of uncertainty about when the volumes were actually written.

We predicted that all these independent variables would have a positive effect on the

attention paid to fraud detection in the Montgomery series. However, we were unsure whether attention to both the techniques and the standards concerning fraud detection would be affected – hence the use of both *HOW TO DETECT* and the two formal positions variables, *RESPONSIBLE* and 3-*POSITIONS.* And, as mentioned, we were uncertain about the timing of the contraction in relation to when the books were written, so we used both 24-month and 18-month variables.

Model, Results, and Discussion

As mentioned previously, our general question is *if economic downturns explain auditor behavior*. Our formal model is as follows:

Text Mentioning Fraud Detection Techniques, Goals, or Both = f (*Various Measures on Timing of Publication of Montgomery Volumes*)

The dependent variable, *Text Mentioning Fraud Detection Techniques, Goals, or Both,* is captured by *HOW TO DETECT* (for fraud detection techniques), and *RESPONSIBLE* and *3-POSITIONS* (for fraud detection goals)*,* constructed out of the Montgomery volumes. The right-hand side variables stand for various measures regarding the timing of the publications are *CONTRACT24*, *%CONTRACT24*, *MAJORITY CONTRACT24*, and, similarly defined, *CONTRACT18*, *%CONTRACT18*, and *MAJORITY CONTRACT18*.

We have previously reported our descriptive findings for the three variables from *Montgomery* [citation suppressed]. Briefly, we found that the percentage of the *Montgomery* volumes asserting an auditor responsibility to detect fraud or discussing such a goal in any way plummeted between 1912 and 1916 (see fig. 1). After 1916, 3-*POSITIONS* rose for most of the rest of the century, but it never again approached anything like the 1912 level.

In other words, analysis of the *Montgomery* auditing series suggests that the U.S. profession began the 20th century with substantial avowals of its responsibility to detect fraud.

Almost immediately, though, the profession began strenuously avoiding the topic of fraud detection as an audit goal. When the subject was brought up in later years, it was often presented in negative, ambivalent, or euphemistic ways, despite the fact that a formal goal of fraud detection appeared in official audit standards by the 1970s (American Institute of Certified Public Accountants 1977).

In contrast, an enormous amount of the early *Montgomery* volumes was devoted to the subject of *how* the auditor should go about detecting fraud (see fig. 2). Subsequently the percentages fell dramatically, a fall that endured through the end of the century, when our data end. Note that this pattern of interest in how to detect fraud was not related to the changes in discussion of formal standards about fraud detection. Whatever factor or factors it was that drove the two behaviors (discussion of detection techniques and discussion of formal goals), the cause(s) must have differed in some way.

Our present question is whether the business cycles of the century affected these variables, and whether it affected goals and techniques differently. Descriptive data for the six measures we used for economic contraction appear in table 2. Regressing our fraud detection variables on these six measures of the presence of an economic contraction, we find that economic downturns had no statistically significant relationship to the percent of *Montgomery* text discussing formal fraud detection *goals* (*RESPONSIBLE* and 3-*POSITIONS*) and, thus, we do not report any results for those variables. In contrast, however, material concerning fraud detection *techniques* was significantly and positively related to economic downturns (see tables 3 and 4).[6]

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[6] Moreover, all six models employ White-heteroskedasticity-corrected standard errors. All the models were run using the statistical software package EViews. Note that we have not run "EXPANSION" models. For the comparable models where %CONTRACT24 and MAJORITY CONTRACT24 are involved, the EXPANSION models would have the opposite signs on the coefficients with everything else remaining the same.

Specifically, we find that *CONTRACT24* has a modest but highly significant effect on *HOW TO DETECT*. The presence of a recession within the two years before a volume was published explains more than half of the variation (R^2 = 54.5%) in the share of the text that volume devotes to techniques for discovering fraud. Similarly, *%CONTRACT24* and *MAJORITY CONTRACT24* explain a substantial amount of the variation (R^2 = 43.8% and 30.1% respectively) in how much attention fraud detection techniques receive, though *MAJORITY CONTRACT24* is significant only at the 10% level.[7] In short, three different measures suggest that economic downturns affected the amount of interest prominent 20th-century auditors had in searching for fraud.

These findings make sense if it is true that the revelation of frauds peak during recessions (see literature review above). It is probably the case that it is harder for a company to conceal financial statement fraud in the harsh environment of a recession than in the more forgiving climate of economic good times. Auditors, alarmed by the public outcry which accompanies such revelations, would naturally redouble their efforts to discover fraud during a recession. If this loss aversion and associated interest in increasing the chances of discovering material frauds were a recent experience when it came time for the leaders of Montgomery's firm to prepare a new edition of the reference manual, that would explain why such practical guidance played a bigger role than usual in the text.

As for our alternate measures of recession, which considered only the 18 months prior to the year of publication (see table 3), we find that only *CONTRACT18* had a significant effect on *HOW TO DETECT*. Neither the percent of the 18 months in recession nor the existence of

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[7] A simple test of difference between means of recessionary and non-recessionary periods would give the same results as the model in which *HOW TO DETECT* is regressed against the *CONTRACT24* variable.

recession for a majority of the period had a clear effect.[8] This may be because updates to the editions sometimes occurred long before the publication date. If updates were largely written a year or more in advance, then recessions occurring 18 to 24 months before publication would be vivid in the writers' memories. Measures based on just 18 months would be less likely to capture this effect.

Recall the evidence from prior studies that loss aversion powerfully affects human decision making. Many of these studies specifically find the effect in potential financial loss situations. The tendency of auditors to do more to detect fraud in hard times that we discern in the *Montgomery* series is predictable in light of this human tendency. Indeed, it may be nearly inevitable. To be fooled by dishonest financial statements causes harm to investors and others. This harm is more dangerous and costly in hostile economic environments than in benign ones. The investing public, politicians, and courts therefore all demand to find out about such a risk. Indeed, the audit has historically developed in large part to satisfy that demand, and it is most urgently pressed when the business cycle is in its downswing.

Auditors are at least as aware of this heightened need for warning during recessions as other people are. Our findings suggest that auditors do, as a practical matter, seek fraud a little more diligently in hard times. This is true even during years when the formal standards have downplayed such a goal.

This fraud-seeking behavior may occur because auditors tend to legitimize their conduct during periods of economic downturn. During downturns, auditors' roles are frequently questioned because there is a perception that "a purpose of audit authorities is to fight fraud" (Cooper *et al*., 2013, p. 441). Auditors, our evidence suggests, attempt to maintain legitimacy by

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[8] A test of difference between means of recessionary and non-recessionary periods would give the same results as the model in which *HOW TO DETECT* is regressed against the *CONTRACT18* variable.

changing audit procedures and increasing detection efforts.

At the same time, auditors' behavior as documented in this study is consistent with prospect decision theory, in that we found auditors were more interested in fraud detection during recessions even in the absence of standards requiring such attention. Apparently, auditors were very averse to the possibility of loss, as the theory predicts.

In contrast, the official audit standards concerning fraud detection exemplify what Dickhaut *et al.* (2010) call "rationally designed" economic institutions. Audit standards are designed at several removes from the fear that drives people in a recession. The standards change only slowly, following extensive interest group maneuvering and bureaucratic consideration. Thus, changes in official goals often will not correspond to the changes in relative risk presented by the business cycle.

Conclusion

To summarize, our study of the pre-eminent U.S. audit practitioners' guide of the 20th century tentatively supports our hypothesis that recessions increase auditors' attention to fraud detection *techniques*. However, we do not find evidence in the *Montgomery* series of increased interest in *formal fraud detection requirements* during recessions, a finding we take to be a result of the time-consuming bureaucratic process of changing formal standards. Such findings are supportive of both prospect decision theory – in that auditors seek to discover fraud more diligently at times when failure would be unusually risky to the quality of the audit - and legitimacy theory – in that auditors seem to seek most diligently to protect the legitimacy of their work in hard economic times when it is under the most serious assault from the public.

Our findings are limited in several important ways. First, the *Montgomery* series can

only be taken as evidence of U.S. audit history. It is an open question whether auditors in other countries have pursued the same path as have American auditors. Secondly, our statistical tests did not control for other variables that may have affected auditors' interest in fraud detection techniques. It is possible that a third variable, which we did not consider, was the real driver of changes in this area. Furthermore, the method – a content analysis of a practitioner's reference series – is an indirect measure of changes in audit practice. We believe the various editions of *Montgomery* to be a reasonable proxy for auditors' behavior in the field, but we could be wrong. Finally, there were only 12 editions of *Montgomery*. Our study is therefore is an example of small-sample "private data collection," a methodology described as fruitful by Chapman (2012, pp. 822-823), but one that can only tentatively support a conclusion. In short, other research methods, such as experimentation, might or might not find the same results we did.

Nevertheless, the study results do have practical implications. Auditors might do well to cultivate their natural tendencies to seek out fraud, especially in recessions. They could focus a little less on the guidance so central to current audit training and standards, such as the evaluation of internal controls and the assessment of fraud risk, which do not directly seek fraud. Instead, or at least in addition, they could focus a little more on actual procedures that will efficiently and directly detect fraud.

Furthermore, auditors could increase these efforts when an economic boom has been going on for a while. The huge frauds perpetrated near the ends of economic booms herald enormous harm that arrives as soon as the ensuing bust begins. Catching a few more of these deceits before the hard times arrive might ameliorate the extent of the damage – and of the subsequent losses to audit firms.

And after all, our findings suggest that despite decades of avoiding, denying, and

reluctantly proclaiming fraud detection as one goal of auditing, auditors have long reacted to hard times, however grudgingly, by becoming more vigilant in searching for fraud. Auditors might do well to give freer rein to their instinctive aversion to losses – and their natural desire for professional legitimacy - when it comes to dealing with the possibility of fraud by their clients.

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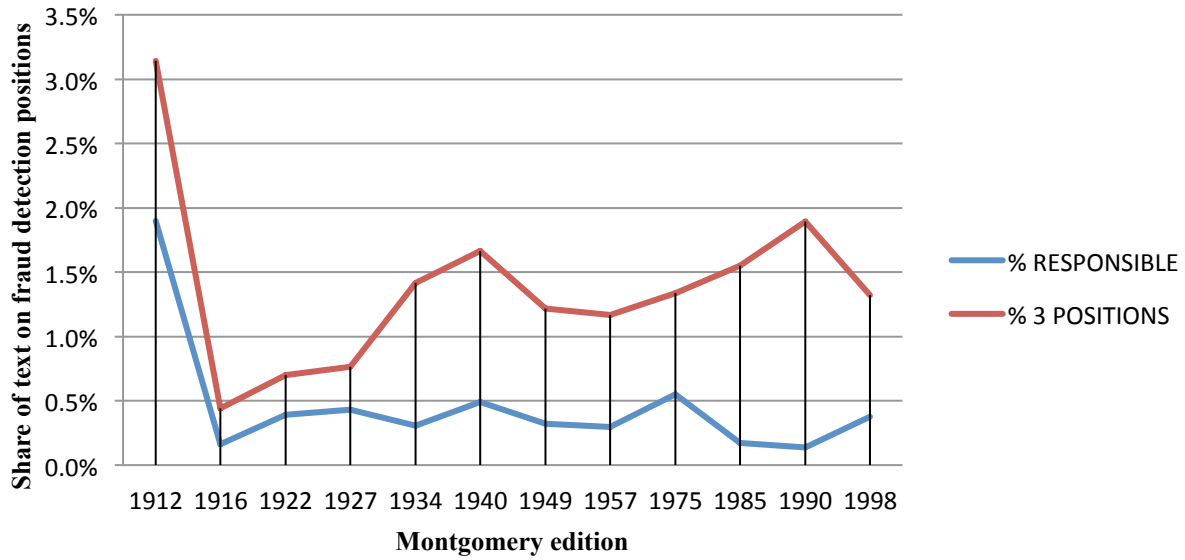**Figure 1. Percent of text on fraud detection positions, by *Montgomery* edition.**

Figure 2. Percent of text on how to detect fraud, by *Montgomery* edition.
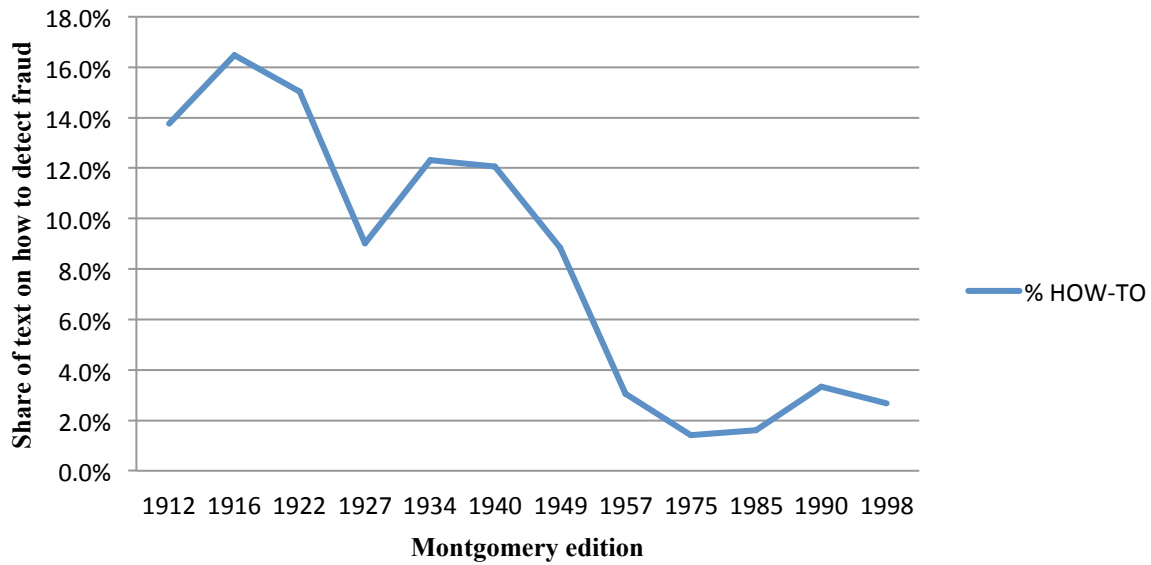
Table 1. Variable descriptions.

Dependent: HOW TO DETECT	Percentage of Montgomery text explaining how the auditor should go about detecting fraud
Dependent: RESPONSIBLE	Percentage of text asserting a formal fraud detection responsibility
Dependent: 3-POSITIONS	Percentage of text asserting, denying, or discussing a formal fraud detection responsibility
Independent: CONTRACT24	Economic decline in any month or months out of the 24 months prior to the year in which a volume was published, dummy variable
Independent: %CONTRACT24	Percentage of months of economic decline that occurred in the 24 months prior to the year in which a volume was published
Independent: MAJORITY CONTRACT24	Economic decline in half or more of 24 months prior to year of publication, dummy variable
Independent: CONTRACT18	Economic decline in any month or months out of the 18 months prior to the year in which a volume was published, dummy variable
Independent: %CONTRACT18	Percentage of months of economic decline that occurred in the 18 months prior to the year in which a volume was published
Independent: MAJORITY CONTRACT18	Economic decline in half or more of 18 months prior to year of publication, dummy variable

Table 2. Descriptive data for independent variables measuring economic contractions, in 24-month and 18-month periods preceding publication of *Montgomery* editions.

Edition	CONTRACT 24	%CONTRACT 24	MAJORITY CONTRACT24	CONTRACT 18	%CONTRACT 18	MAJORITY CONTRACT 18
1912	1	95.83%	1	1	100.00%	1
1916	1	50.00	1	1	33.33	0
1922	1	75.00	1	1	72.22	1
1927	1	8.33	0	1	11.11	0
1934	1	62.50	1	1	50.00	1
1940	1	25.00	0	0	0.00	0
1949	1	4.17	0	1	5.56	0
1957	0	0.00	0	0	0.00	0
1975	1	54.17	1	1	72.22	1
1985	0	0.00	0	0	0.00	0
1990	0	0.00	0	0	0.00	0
1998	0	0.00	0	0	0.00	0

Table 3: Regression models on text in *Montgomery* editions devoted to techniques for discovering fraud regressed on measures of economic downturns over the 24 months preceding publication of an edition.

Dependent Variable: HOW TO DETECT
n = 12

Model 1

VARIABLES	COEFFICIENT	ST. ERROR	T-STAT	SIGNIFICANCE
INTERCEPT	0.0266	0.0036	7.4010	***
CONTRACT24	0.0845	0.0175	4.8194	***
R-SQUARED	0.55			
ADJ. R-SQUARED	0.50			

Model 2

VARIABLES	COEFFICIENT	ST. ERROR	T-STAT	SIGNIFICANCE
INTERCEPT	0.0493	0.0127	3.8857	***
%CONTRACT24	0.1079	0.0281	3.8431	***
R-SQUARED	0.44			
ADJ. R-SQUARED	0.38			

Model 3

VARIABLES	COEFFICIENT	ST. ERROR	T-STAT	SIGNIFICANCE
INTERCEPT	0.0580	0.0156	3.7068	***
MAJORITY CONTRACT24	0.0600	0.0306	1.9612	*
R-SQUARED	0.30			
ADJ. R-SQUARED	0.23			

Table 4: Regression models on text in *Montgomery* editions devoted to techniques for discovering fraud regressed on measures of economic downturns over the 18 months preceding publication of an edition.

Dependent Variable: HOW TO DETECT
n = 12

Model 4

VARIABLES	COEFFICIENT	ST. ERROR	T-STAT	SIGNIFICANCE
INTERCEPT	0.0454	0.0186	2.4380	**
CONTRACT24	0.0644	0.0270	2.3829	**
R-SQUARED	0.35			
ADJ. R-SQUARED	0.28			

Model 5

VARIABLES	COEFFICIENT	ST. ERROR	T-STAT	SIGNIFICANCE
INTERCEPT	0.0625	0.0163	3.8375	***
%CONTRACT24	0.0713	0.0415	1.7169	Insignificant[#]
R-SQUARED	0.21			
ADJ. R-SQUARED	0.13			

 # Significant at 12 percent

Model 6

VARIABLES	COEFFICIENT	ST. ERROR	T-STAT	SIGNIFICANCE
INTERCEPT	0.0713	0.0193	3.6867	***
MAJORITY CONTRACT24	0.0350	0.0354	0.9899	Insignificant
R-SQUARED	0.09			
ADJ. R-SQUARED	0.00			

NB: Significance levels are indicated as follows: *** - p-value less than 0.01 percent; ** - p-value between 0.01 and 0.05 percent; * - p-value between 0.05 and 0.1 percent.