

The State Of, and Prospects For, Forensic and Fraud Research that Matters

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Introduction

Forensic accounting and fraud investigation is a rapidly growing accounting discipline in at least three domains: (1) practice, (2) education and certification, and (3) research and publication. The growing importance of these practices motivates exploring the nature of forensic and fraud (FF) accounting investigations, practical and scholarly. Specifically, what is the state and nature of forensic accounting practice and FFR, and, how might they inform one another? What research methods and theories are most likely to yield scholarly and practical insights? This emerging sub-discipline in accounting offers a unique opportunity to comment on the evolution of methods in an accounting research stream, and, to consider strategies for increasing the appeal and utility of accounting research beyond the claim that such research often approximates “chain letters” written by academics exclusively to one another (Lee 2001).

Many exemplary scholars judge the accounting research published in higher ranked journals to lack innovation and be deficient in its understanding of accounting practice. For example, Hopwood (2007) observes, in among his last public statements about accounting research:

... there is a growing sense of unease about the state and direction of accounting research. Although articulated in a variety of different ways in a number of different contexts, there nevertheless is a view that accounting research has become insufficiently innovative and increasingly detached from the practice of the craft (p. 1365).

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And also:

... increasingly accounting research is being seen as too cautious and conservative, too rigid and traditional, and insufficiently attuned to grapple with the new and to embrace novel insights and bodies of knowledge. Rather than being excited about the emerging gaps in our knowledge, it is as if the academic accounting community prefers to focus on the leads that arise from within the existing research traditions (p. 1370).

Similar concerns about accounting research, i.e., of insufficient innovation, of the procrustean straitjacketing of manuscripts and careers to conform to the requirements of “normal” accounting science, and, of an insufficient attention to accounting practice are echoed in recent literature (Cooper and Morgan 2008; Fogarty and Jonas 2010; Tuttle and Dillard 2007) including by a recent AAA Presidential address (Rayburn 2005) and AAA President working paper and task force (see Waymire 2011).

However, does the emerging field of FFR evidence similar deficiencies of innovation and attention to practice? This investigation surveys recent FF literature, and opines on the state of, and prospects for, FFR that matters. By research “that matters” we mean investigations that: (1) contribute beyond advancing the academic careers of those who publish the work, (2) are intended for an audience beyond “chain lettering” among a small group of scholars within a narrow academic accounting sub-community, and, (3) evidence a deep understanding of the contexts of professional accounting and business practice.

The investigation begins with a description of the domains of forensic accounting and fraud examination and the state of these professional practices. Following this, we

present data intended to describe the growth and state of FFR. Finally, we suggest strategies for generating FFR that matters in both practice and the academy.

The Growth of Forensic and Fraud (FF) Accounting Practice

While it is a useful exercise to consider the extensive and precise meanings of FF accounting practice, our goal herein in relation to these practices is more modest: to consider a starting point for “what we talk about when we talk about FF practice” (to paraphrase Raymond Carver). Used as an adjective, the word “forensic” concerns pleadings in a court of law (Oxford English Dictionary 2010). Consistent with this observation, a broad definition of forensic accounting is that it concerns an issue that co-joins accounting and law (cf. Crumbley et al. 2011). For example, KPMG’s publication *“Forensic Accountant”* (KPMG 2010), which considers accounting issues related to litigation and dispute resolution, applies this definition. Litigation support services, one type of forensic accounting work, are an important area of professional accounting practice that concerns, “All activities designed to prepare a lawyer to try a case, including interviewing witnesses, document review, and case preparation” (Lexbe, 2010). Broader definitions argue that forensic accounting informs disputes that involve claims (e.g. Kranacher, Riley, Wells, 2011) regarding the fairness of financial information but is unconcerned with GAAP-based style and constraint (cf. Crumbley et al. 2011). Hence, it can be argued that forensic accounting informs economic disputes, while fraud investigation, more narrowly, concerns fraud and direct allegations of financial misrepresentation.

Employment in forensic accounting appears to be growing; as evidence of this assertion, the Department of Labor (DOL) recently added “Fraud Examiners, Investigators and Analysts” (Occupation #13-2099.04), as a new and emerging US occupation. As

defined by the DOL, fraud examiners, “obtain evidence, take statements, produce reports, and testify to findings regarding (the) resolution of fraud allegations” (Bureau of Labor Statistics 2009). Projections are for rapid growth in this occupation for the forecasted ten-year period (i.e., 2008 through 2018), with US employment increasing from approximately 150,000 to 200,000 job holders. As of 2008, approximately half of fraud examiners have a bachelor’s degree or higher while 15% have a high school education or lessⁱ. Fraud examiners work most frequently in the finance and insurance industries (40%) and, second most frequently, in government (20%) with median annual wages (2010) of about \$60,980 (Bureau of Labor Statistics 2012).

FF Accounting Education and Certification

Growing FF accounting educational opportunities are evident in the increasing availability, and success, of textbooks and curriculums in forensic accounting methods (Buckhoff and Schrader 2000). For instance, five major publishers recently published first editions of their forensic accounting books: CCH in 2003 (Crumbley, Heitger, and Smith, 2003), McGraw-Hill in 2007 (Hopwood et al., 2007), Prentice Hall in 2011 (Taylor, 2011), Southwestern in 2006 (Albrect et al., 2006) and Wiley in 1994 (most recent edition: Kranacher et. al., 2010). One of the most successful forensic accounting textbooks, i.e., Crumbley, Heitger and Smith (2011) is now in its fifth edition. In addition, the November 2008 special issue of *Issues in Accounting Education* explored the topic of “Education in Fraud, Forensic Accounting, and Financial Crimes”. This issue includes a description of a *National Institute of Justice* project to develop a model curriculum in fraud and forensic accounting education (Pearson and Singleton, 2008), and, several implemented curriculums based on this initiative (Curtis, 2008a, 2008b; Fleming et al., 2008; Heitger and Heitger,

2008; Kranacher et al., 2008; Kresse, 2008; Young, 2008). Finally, both textbooks and published cases illustrate common fraud strategies to educate students in catching financial crooks (Dee and Durtschi, 2010a, 2010b; Durtschi, 2003; Peterson and Gibson, 1999) and in learning the dynamics of forensic practice and investigation. In addition, an emerging stream of education research considers the need for revised content and structure (Seda and Kramer 2009), e.g., teaching interviewing skills (Porter and Crumbley 2012), in forensic accounting curricula.

The growth of forensic accounting certifications also evidences the expanding opportunities for, and increasing professionalism of, forensic accounting practice (Huber 2012, 2011). For example, in 2008, the AICPA created a Financial Forensics Certification (FFC: American Institute of Certified Public Accountants 2010). More recently, the Association of Certified Fraud Examiners (Association of Certified Fraud Examiners 2010) created the Certified Fraud Examiner (CFE) certification. Hence, evidence from the DOL, educational support and expanding certifications all suggest the emergence and expansion of FF accounting education and practice. But, to paraphrase Hopwood (2007) “whither FF accounting research?”

The FF Accounting Research Literature

Accounting practice innovations generally precede innovations in accounting scholarship (Hopwood 2007), and while FF accounting research is growing, it is small relative to the population of accounting research. For example, of the ~ 3,100 published papers that are listed in the *American Accounting Association* (AAA) database for the period 2000 through September 2011, seventy-six titles include “fraud” (~ 2.5%) while thirteen (~ 0.4%) include “forensic.” However, growing interest in FFR and practice is evident in the

founding of the Forensic & Investigative Accounting Section (FIAS) of the AAA by Professor Crumbley, which held its inaugural meeting in August 2009 and by the founding of the *Journal of Forensic and Investigative Accounting*, specifically devoted to forensic and fraud research (FFR), which published its inaugural issue in January 2009.ⁱⁱ The scope of the *Journal of Forensic and Investigative Accounting* (Crumbley 2010) encompasses:

1. <Investigates> important academic forensic accounting, fraud, and litigation services issues;
2. tests and improves forensic accounting research skills, tools, and techniques;
3. stimulates discussion and experimentation in instructional means, methods, and materials in the field of forensic accounting and research in general;
4. exchanges ... ideas and findings about developments related to instruction, learning, and curricular issues in forensic accounting and fraud education.

In addition, the *Journal of Journal of Forensic Studies in Accounting and Business*, which began publication in 2009, provides, "...an [additional publication] outlet for communication and research collaboration among fraud and forensic accounting practitioners and education programs" (Georgia Southern University 2009).

Introduction and Variables. To investigate the growth and state of FF accounting research, we collected data on the antecedents of publication success within the FFR literature. To do so, we collected and coded the FF publications in AAA journals along three dimensions:

1. Topics - what is the topical focus of the published FFR manuscripts?
2. Theory – Economic theory dominates scholarly accounting investigations (Chua 1986; Klammer and McCloskey 1992; Tuttle and Dillard 2007). Accordingly, we

assessed whether the theory underlying the investigation was economic (versus non-economic).

3. Method – research methods embed epistemological (e.g., what is knowledge?) and ontological (e.g., what is “real”?) assumptions regarding what research issues are worthy of, and feasible for, investigation (Chua 1986). Accordingly, we examined the research methods of published FFR, including whether the principal method is quantitative (numeric) or qualitative (textual).

In addition, we collected data on the AAA journals that have published FFR, and assessed the quality of these journals using common metrics of journal quality.

Theory and Hypotheses. Our hypotheses derive from Institutional Theory, which seeks to, “explain the forces that influence individuals within social organizations” (Tuttle and Dillard, 2007, p. 388). One aspect of Institutional Theory, i.e., mimetic imitation - the tendency of institutions and individuals to imitate influential others - can be used to argue, in relation to academic discourse, that competitive forces will cause scholars to imitate the research generated at high prestige institutions (Fogarty and Ravenscroft 2000; Garrels 2011; Tuttle and Dillard, 2007). Some argue that these forces have caused accounting scholarship to move towards a convergence on, and dominance of, financial and archival accounting research (e.g., Rayburn 2005; Tuttle and Dillard 2007) which derives from economic scholarship (Klamer and McCloskey 1992). These imitative and mimetic forces should, in an academic discipline (i.e., accounting) within which econometric research is the privileged discourse (Fogarty and Jonas 2010), lead to a higher “value” for manuscripts that use quantitative research methods, and, are based in economic theory. Accordingly, the FFR

published in higher rated AAA journals, i.e., that is valued more highly within the scholarly accounting community, should:

H1: be more frequently based in economic theory,

H2: more frequently use quantitative methods.

The importance of these hypotheses, which posit that the FFR literature will imitate the determinants of success in the larger scholarly accounting literature, is the insight that they provide into the direction, and extent of imitation, that is present in the FFR literature that appears in AAA journals. Rewarding quantitative methods and economic theory more highly than alternative theories and methods is evidence of mimetic imitation, and, should, assuming that publication success motivates accounting scholars, lead to greater production of these preferred forms of scholarly discourse. Hence, the above hypotheses should provide insight into the extent of mimetic imitation, and the corresponding reward (incentive) structure, within the emergent domain of FF accounting scholarship.

Method

Sample. A literature search (census) of FFR in AAA academic journals for the 11.75 year period from 2000 through September 2011 yielded ninety-two non-education papers with either “forensic*” or “fraud*” in the title, abstract, or author supplied keywords.ⁱⁱⁱ We restricted the search to AAA academic journals: (1) because more data is available about these journals and publications, and, (2) to control for variations in editorial scope and control. Specifically, a single committee (the AAA Publications Committee; AAA 2010) has oversight of AAA publications, and publication and editorial processing occurs in a single (i.e., Sarasota, FL AAA) office. Within this broad framework of administration, however, editors, editorial boards, and reviewers are unique to the sections of the AAA, for

section journals, while the AAA Publications Committee nominates the editors, which are then, typically, approved by the AAA Executive Committee, for three AAA journals (The Accounting Review: TAR, Issues in Accounting Education: IAE, and Accounting Horizons: AH).

Data. Collected data assessed the topics, theory, research method, and publication quality of the FF literature:

1. Topics – Classification of the primary topical focus of the published research was into six areas: audit, financial, systems, managerial, tax, and international.

2. Theory – related to hypothesis 1, we assessed whether the theory underlying the investigation was economic (or not).

3. Method - We coded two measures of research method:

a. a descriptive, seven-level categorization: (1) empirical - archival (quantitative), (2) empirical – experiment, (3) empirical – qualitative, (4) empirical – survey, (5) formal economic model, (6) literature review, and (7) other, and,

b. related to hypothesis two, a dichotomous assessment of whether the method was quantitative (principally numeric) or qualitative (principally descriptive, i.e. consisting of text and words).

4. Journals and journal quality. To provide the dependent measures for the tests of hypotheses, we first identified the nine non-education AAA journals that published at least one non-education FFR accounting paper between 2000-2011. The resulting sample of ninety-two papers are listed here by number of published FFR papers per journal: (1) *The Accounting Review* (TAR; n = 26 papers), (2) *Auditing: A Journal of Theory and Practice* (AAJTP; n = 24), (3) *Accounting Horizons* (AH; n = 14 papers), (4) *Behavioral Research in*

Accounting (BRIA; 7 papers), (5) Current Issues in Auditing (CIIA; n = 7), (6) Journal of Emerging Technologies in Accounting (JETA; n = 5), (7) Journal of Information Systems (JIS; n = 4), (8) Accounting and the Public Interest (API; n = 4), and (9) the Journal of Legal Tax Research (JLTR; n = 1).

To assess whether topics, methods and theories associate with publication in higher quality AAA journals, we identified metrics of journal quality, organized into three categories, i.e., expert evaluations (EE), journal prestige (JP), and citation-based indices (CB). Descriptions of these metrics follow; descriptive statistics appear in Appendix A. For all metrics, rescaling ensured that higher (lower) values indicated better (lower) journal quality.

1. Expert evaluation (EE):

- a. (Abbreviation: RCSurvey) A survey of accounting scholars' perceptions of journal quality, reported in Reinstein and Calderon (2006). Before considering omitted journals, and rescaling, this metric ranged from: (1) best: *TAR* (rating: 1) to (2) worst: tie between *IAE* and *AH* (rating 1.67) (prior to rescaling, mean = 1.35, SD = 0.38). We reverse scored and rescaled this metric, so that higher values indicated a better journal (resulting range: 0 to 1, mean = 0.65).
- b. (Abbreviation: ARC) Expert opinion of the ARC (Australian Research Council) Excellence in Research for Australia (ERA) (<http://www.arc.gov.au/era/>) ranking. The ERA, "assesses research quality within Australia's higher education institutions using a combination of indicators and expert review by committees comprising experienced, internationally recognized experts" (Mean = 4.7, range = 3 to 5.3).

- c. (Abbreviation: Moosa_Rank) Aggregate journal rankings, based on citation-based methods, computed and reported in Moosa (2011). Although the Moosa ranking closely correlates with ARC rankings, Moosa presents this ranking as a critique of, and alternative to, the ARC ranking (Mean = 4.7, range = 3 to 5.3).

2. Journal Prestige (JP):

- a. (Abbreviation: JAge) Journal age, i.e., the number of years since inception of the journal (mean = 35.6, SD = 29.8, base year: 2010), which ranges from oldest: TAR (JAge = 81) to newest: CIIA (JAge = 0). We assume, and predict, that longer publication period indicates higher journal prestige.
- b. (Abbreviation: AAA_Member) AAA section membership, (mean = 5,504.5, SD = 5,046.7, higher values = better journal, based on 2006 data). We assume, and predict, that a higher section membership associated with a journal indicates higher journal prestige. All (or almost all, depending on the year) AAA members receive *TAR* and *AH*. Hence, the entire AAA membership is counted as *TAR* and *AH* “section” membership. We counted the *IAE* “section” membership as the AAA Teaching and Curriculum section.

3. Citation-based Indices (CB):

- a. (Abbreviation: h_index) The h (for Hirsch 2005, 2007) index (data obtained from Moosa 2011) “... means that the author or journal has h papers that have been cited at least h times each (Moosa 2011, p. 816)” (mean = 52.8, SD = 47.9, range = 1 to 149).
- b. (Abbreviation: g_index) Egghe (2006, p. 132) defines the g index as follows: ‘a set of papers has a g-index g if g is the highest rank such that the top g papers

have, together, at least g2 citations'. Hence, the g index, although highly correlated with the h index, weights highly cited papers more heavily than does the h index (mean = 83.5, SD = 80.2, range = 1 to 245).

- c. (Abbreviation: AWCR) The Age-weighted citation rate (AWCR) slightly modifies the AR index of Jin et. al (2007). The AR index is the square root of the sum of age-weighted citations of the papers used to calculate the h index (the h core). In contrast, the AWCR measures the number of citations but adjusts for (i.e., divides by) the age of each individual paper. Hence, the AWCR calculates a measure based on all papers, not just those included in the h core (as does the AR). Hence, summing over all papers increases accuracy of the AWCR measure age-weighted impact compared with the AR metric (Mean = 1317.3, SD = 2023.8, range = 1 to 5538).

Descriptive statistics for the journal quality metrics (see Table A1), and correlations among the journal quality and predictor variables (see Table A2), appear in the Appendix.

Missing Journal Quality Data. The RC_survey metric omits four AAA journals (i.e., API, JLTR, CIIA, and JETA) that have published FFR, while the CB and the remaining EE metrics omit three relevant AAA journals. We assumed that omissions reflected a low status value for the omitted journals. For example, prior to adding the omitted journals, the reversed form of the RC_survey metric ranged from 1 (best) to 0.33 (worst). We assigned the four omitted journals a(n) (arbitrary low) value of 0. All other rankings omitted three journals, i.e., JLTR, CIIA, and JIS. Similarly, we assigned omitted journals arbitrarily low values on these metrics.

Coding. Two coders evaluated all published papers. Cohen's Kappa coefficients, for the four predictor variables in the hypotheses, evidenced excellent agreement among coders (See Table 4 Panel A – Cohen's Kappa range = 0.917 to 1.0). The (few) differences between coders were resolved by discussion.

Factor Analysis. Factor analysis (principal components, Varimax rotation, Kaiser Normalization) of journal quality metrics tested for possible dimensional reductions in the set of dependent measures. Factor analysis yielded two reliable factors, with the journal prestige and citation-based indices loading on the first factor (Eigenvalue: 4.3; 53.7% of variance explained) and the expert evaluation metrics loading on the second factor (Eigenvalue: 2.96; 37% of variance explained; See Table 1). Accordingly, scores on the two factors formed the dependent measures in the regressions.

Regression. Two regressions (i.e., one for each factor) analyzed four predictors, i.e., financial topic, audit topic, economic theory, and quantitative method, which were regressed against the two factor scores (as dependent measures). Variance Inflation Factor (maximum: 1.3) and Condition Indices (maximum: 7.4) metrics provided no evidence of significant collinearity (see Belsley 1991 regarding collinearity diagnostics).

Statistical Power. *A priori* statistical power calculation determined if the sample of published papers provided a sufficiently low likelihood of Beta error, i.e., of incorrectly failing to reject a null hypothesis (Cohen, 1969, 1988; Lindsay 1993). Power calculations for a linear regression, a medium effect size (Cohen's $f^2 = 0.15$) and $\alpha = 0.05$, with four predictor variables, and a desired Beta error equal to 0.80 (Cohen 1988) indicated a required sample size of 85 observations, which is less than the achieved sample of 92 observations

(Faul, Erdfelder, Buchner & Lang 2009). Hence, the *a priori* statistical power was adequate to detect medium effects in the sample.

Results

Descriptive. Table 2 presents descriptive data on the surveyed literature. Table 2 Panel A presents data describing the topical coverage of the literature, while Table 2 Panel B cross tabulates FFR topics and methods. Two topics, audit (63%) and financial accounting (23.9%), dominate the literature, together, accounting for ~ 87% of published research. The four remaining topics, which account for the remaining published research, are: (1) accounting systems (6.5%), (2) managerial accounting (3.3%), (3) taxation (2.2%), and (4) international accounting (1.1%).

Greater diversity in methods is evident in the FFR literature compared with the diversity in topical coverage. Specifically, the standard deviation across the seven research methods of Table 1 Panel B (9.8) is less than the standard deviation across the six topics in Table 2 Panel A (24.2), indicating greater method, than topical, diversity. Three categories of research methods account for about 70% of the literature: (1) empirical quantitative archival (29.3%), (2) experimental empirical (27.2%), and (3) qualitative empirical (13.0%). Four methods account for the remaining 30%: (1) empirical survey (8.7%), (2) formal economic modeling (6.5%), (3) literature reviews (6.5%), and (4) other (8.7%).

To reduce the number of cells with a small number of entries, Table 2 Panel B combines the 13% of literature in the accounting systems, managerial accounting, taxation, and international topics. The cross tabulation of research topics and methods indicates that four out of twenty-one ($= 3 * 7$) cells account for over half (~61%) of the literature: (1) topic: audit, method: empirical experimental ($n = 23$, 25%), (2) topic: financial accounting,

method: empirical, archival - quantitative (n = 16, 17.4%), (3) topic: audit, method: empirical, qualitative (n = 9, 9.8%), and (4) topic: audit, method: empirical, archival - quantitative (n = 8, 8.6%). The remaining 39% of literature disperses among the remaining 17 cells of Table 2 Panel C. Table 3 cross tabulates methods by journals. Two AAA journals (TAR, AAJTP) account for over one-half, while three other AAA journals (AH, BRIA, CIIA) account for over thirty percent of the published FFR literature. The remaining 15.2% of the literature, listed as “other” in Table 3, appear in four AAA journals.

Table 4 presents descriptive statistics on the four predictor variables. Slightly more than thirty percent of the papers apply economic theory. Four of the identified research methods (empirical archival, empirical experimental, empirical survey, and formal economic) were numeric (quantitative); the remaining two (empirical qualitative and literature review) were non-numeric (qualitative). In addition, we analyzed the papers classified as an “other” method to identify them as quantitative or qualitative. In total, 73.9% of the published papers used quantitative, while 26.1% used qualitative, methods.

Regression Results and Tests of Hypotheses. Table 5 presents the regression results for factor 1, i.e., the JP and CB factors (Panel A) and factor 2, i.e., the EE measures (Panel B). The factor 1 regression explains 19.3% of variance and indicate that, consistent with hypothesis 1, economic theory predicts publication in higher ranked journals ($p = 0.001$). No other predictor variables for factor 1 approach significance. Hence, the results for factor 1 support hypothesis one but not hypothesis two. The factor 2 regression results (See Table 5 Panel B) explain 34% of variance and indicate that, consistent with hypothesis 2, a quantitative method predicts publication in higher ranked journals ($p < 0.001$). In addition, an audit topic also predicts publication in higher ranked journals ($p = 0.002$). No other

predictor variables for factor 2 approach significance. Hence, the results for factor 2 support hypothesis two but not hypothesis one.

Additional Analysis: Is the Frequency of FFR Publication Increasing in AAA Journals? We conducted descriptive and regression analysis to determine the frequency of, and longitudinal trend of, FFR publication in AAA journals. On average, about 7.7 non-education FFR publications appear in AAA journals for the sample period. Plotting the frequency of FFR publications suggests an increase in publication frequency over the 11.75 years of the data set (See Figure 1). The observation of a longitudinal increase in publication frequency is confirmed by two regression analyses with the number of FFR papers published per year as the dependent measure and predictor variables of: (1) the year (2000-2011) ($\text{adj. } r^2 = 0.468$, $F(1,10) = 10.68$, $p = 0.008$), and, (2) a dichotomous variable that divides the 11.75 years of observed data into two periods (i.e., 2000-2005 = 0 and 2006-2011 = 1) ($\text{adjusted } r^2 = 0.367$, $F(1,10) = 7.37$, $p = 0.022$). The coefficients in these regressions indicate that, on average, the number of FFR publications has increased by 1.5 papers per year over the 11.75 years in the data set, and, that there are, on average, 9.2 more FFR published papers per year in the period 2006-2011 compared with the period 2000-2005. Hence, the data suggest an increasing frequency of FFR publications across the sample period.

Additional Analysis: Are there Trends in Topics, Methods, and Theory in the FFR Literature? We also tested for longitudinal trends in topics, methods, and theory using a GLM and the just-described predictor variables of year and period (dichotomous: early vs. late) with four dependent measures (described previously): (1) financial topic, (2) audit topic, (3) quantitative method, and (4) economic theory. Neither overall GLM was

significant (year: Wilks' Lambda = 0.96, $F(3,137) = 1.98$, $p = 0.12$; period: Wilks' Lambda = 0.98, $F(3,137) = 0.98$, $p = 0.4$). Hence, we find no evidence of a longitudinal trend in FFR topics, methods, or theory.

Additional Analysis: IS FFR Publication Journal Quality Increasing, Decreasing, or Invariant? We conducted a general linear model (GLM) analysis to determine whether the quality of FFR publications in AAA journals was increasing, decreasing, or unchanged across the 11.75 years in the data set. The results of two regressions, with dependent measures of factor scores described previously, indicated:

1. Year as Predictor Variable. This GLM tests whether, across the period of the sample, the journal quality of FFR publications has increased, decreased, or is unchanged. The overall model was not significant (Wilks' Lambda = 0.95, $F(2,89) = 2.12$, $p = 0.127$) indicating that, across the time of the sample, that publication quality was invariant, by years, for the sample period.
2. Dichotomous Variable (Earlier vs. Later) Predictor Variable. This GLM tests whether the journal quality of FFR publications increased, decreased, or was unchanged, between the first (2000-2005) versus the second (2006-2011) period in the sample. Overall model results were significant (Wilks' Lambda = 0.91, $F(2,89) = 4.43$, $p = 0.015$). While the results for factor 1 (i.e., journal prestige and citation-based indices) were not significant ($F(1,90) = 0.990$, $p = 0.322$), results for factor 2 (i.e., expert evaluation) indicated a significant coefficient for time period ($F(1,90) = 7.793$, $p = 0.006$). The coefficient for factor 2 was positive, which indicates that the journal quality, as measured by expert evaluation, of FFR publications in the later period was higher than for that of the earlier period.

In summary, these results suggest that the journal quality of FFR publications has increased between the first and second phase of the sample period, on the expert evaluation (i.e., factor two), but not the journal prestige and citation-based indices (i.e., factor one), metric.

Sensitivity Analysis: Treatment of Missing Journal Data. The previous analysis assigned arbitrary, lower values for missing data on six of the metrics for which journal data was unavailable. We tested the sensitivity of the results to the values assigned for these missing data by, instead of assigning an arbitrary lower value for missing data, assigning the lowest value present in the existing data set for the six metrics on which journal data was missing. The factor analysis of these data indicates a single reliable factor (eigenvalue = 6.13; percentage of variance explained = 78.9%). The regression equation, using the same predictor variables as the previous analysis, and the single factor explains 36.2% of the variance. All four predictors are positive and significant in the resulting model: economic theory ($p = 0.001$), quantitative ($p < 0.001$), audit ($p = 0.007$), financial ($p = 0.028$). Hence, the sensitivity analysis results provide stronger support for both hypotheses than do the primary reported results.

Results Summary. The modal FFR paper investigates an audit topic (63%), using either quantitative archival or quantitative experimental data (56.5%), and appears in either TAR or AAJTP (54.4%). Regression results provide some support for hypotheses one and two, indicating that the papers published in higher quality AAA journal are imitative of the determinants of success in the broader accounting literature, in that they are more frequently: (1) based in economic theory, and, (2) use quantitative methods and data. Regression results also indicate that papers investigating auditing topics and, to a lesser

extent, financial topics in the sensitivity analysis, appear more frequently in the higher ranked journals. Finally, sensitivity analyses suggest stability in the main reported results, and, provide some evidence of a longitudinal increase in FFR publication quality.

Towards FF Research That Matters

Consistent with posited theory and hypotheses, the determinants of success for FFR published in AAA journals appear to mimic, and are consistent with, those of the more general accounting literature; this result is, perhaps, unsurprising. Of potentially greater import is the creation of FFR that matters, i.e., that influences non-academics and is widely read. We next offer five propositions, organized into three categories, for creating a FFR literature that matters. Proposition one relates to the articulation of FFR and practice, propositions two through four relate to FFR questions, while proposition five considers FFR method.

Proposition #1: FF practice should inform FFR.

The absence of “context” in North American accounting research, i.e., of a deep understanding of the institutions of accounting, of their complex and dynamic inter-relations, and of a knowledge of accounting practices, is an important failing of this literature (Cooper and Morgan 2008).^{iv} The growing North American lacuna of a practical understanding of markets and of accounting institutions and practices surely derives, at least in part, from the changing composition of those who seek, and are admitted into, PhD education in accounting (Hopwood 2007). Historically, accounting PhD students had significant professional accounting experience, to which doctoral programs added training in the methods and practices of social science. Increasingly, today’s PhD students have little professional experience but are strong econometricians and mathematicians. While

econometrics and mathematical training support large sample, quantitative, research, they are of little value in facilitating a deep understanding of the contexts of accounting, finance, markets, and, management. That the accounting scholarly community has "... invested insufficiently in mechanisms for engaging with the ever-changing world of practice" (Hopwood 2007, p. 1370) is at least partly a function of the changing composition, and declining level of engagement in professional practice, of the accounting professorate.

But, there are reasons for optimism regarding the future relations of FF accounting scholars and professionals. The ADS program, begun four years ago, will graduate its first class of about thirty accounting scholars in 2012 (Accounting Doctoral Scholars 2009). The (eventual) one-hundred-twenty graduates of this program have either significant taxation, or auditing, public accounting experience. In addition, several of the sections of the AAA strongly engage with professional practice communities, including the Taxation, Auditing, Public Interest, and, Forensic and Investigative Accounting sections. To remain vital and interesting, FFR must engage with, and contribute to, the professional practices of FF accounting. Achieving this objective requires a professorate that is both capable of, and interested in, such engagement.

Proposition #2: FFR should aspire to "phronetic" knowledge.

Aristotle's ideal of "practical knowledge" or "wisdom in practice", i.e., phronesis, (Cooper and Morgan 2008), is out of fashion in the large-sample quantitative research that dominates North American, including AAA, publications. Instead, large-sample research aspires to be and become a nomothetic science of the observable "average", "normal", and "mundane". Alternatively, FFR that aspires to phronetic knowledge will integrate human values, power relations, and the noneconomic into contextually rich, nuanced descriptions of

situational relations (cf. Cooper and Morgan 2008). By way of contrast, large sample research aspires to descriptions of phenomenon that transcend the unique and particular to achieve generalizable truths.

But, the dynamic and evolutionary nature of fraud and forensics limit the possibilities for, and usefulness of, the generalizable truths sought in large sample research. For example, the internet bubble of the 1990s was premised upon the argument that the old rules of equity valuation no longer mattered (Bunnell and Luecke 2000). That building companies based on emerging concepts such as “market presence” and “internet reach” would create eventual profits. Essentially, proponents of such companies argued that the old valuation rules no longer applied and that new “internet era” rules now governed market valuation. Similar arguments motivated subprime mortgage lending in the 2000s. In the “new” market, financial institutions acted as if the profitability and collectability of loans no longer mattered, since these loans were to be repackaged and resold to buyers who, it was argued, had little interest in loan collectability. The profitability was in loan origination; concerns regarding collectability were irrelevant “old school” thinking.

Ponzi schemes follow similar “new school” versus “old school” dichotomies to lure investors to the “new”, i.e. the opportunity or con, with promises as to the irrelevance of the “old”, i.e., previous expectations of returns. For example, Charles Ponzi promised investors outrageous returns (50% ROI in 45 days or great than a 400% annualized return) based on unrecognized arbitrage opportunities in international reply coupons (IRCs). The scheme (con) was to purchase IRCs, which had a contracted exchange value, in countries with a devalued currency and sell them in countries with higher valued currency (Zuckoff 2005, p.95). While the postal arbitrage opportunity existed, and therefore provided credibility to

Ponzi's claims, the scale of operations, and level of profits were imaginary; Ponzi never converted IRCs back to cash or implemented the promised arbitrages. He instead relied on new investor capital to pay older investors' returns, and, "Ponzied" his way to prison (Darby 1998; Zuckoff 2005).

The above cases illustrate the essential con of most financial frauds: that, *in a new, unique and particular context*, the old principles of valuation and profitability no longer apply. Hence, frauds imbed, by necessity, in contexts. In most emerging frauds, the argument (i.e., the con) is that, while the old rules are certainly good and worthy servants, in general, *in this new, particular, unique, and exciting context*, they are misguided and irrelevant.

How then, can generalized, large-sample research provide insight into frauds that occur in unique, emergent, and specific contexts? If it were possible to draw large-samples across multiple frauds, such research could illuminate the commonalities of contexts that favor fraudulent discourses. Regrettably, however, we have never seen such, nor do we expect to see, such research. Instead, the dominant method of accounting research is to draw one large, homogeneous sample, from a publicly available database, which includes a small subset of frauds, for a small sample of periods (typically less than 10 years). Such research offers no possibility of providing the breadth and scope of investigations that would contribute to understanding the cross-contextual, i.e., generalizable characteristics of deception. The sample and research design of the resulting research ensures that its results will lack both depth (i.e., an investigation of the unique and particular) and breadth (generalizability across contexts, markets, and settings).

The alternative, i.e., research that aspires to phronesis, offers the possibility of understanding how (usually fraudulent) claims regarding how the rules don't apply *in this context, in this scenario, and in this market* manifest and are marketed. Recent examples of such investigations include case reports of "viatical" (life insurance) fraud (Gierlasinski and Carnes 2003), bond sales fraud (Anderson et al. 2005), and, a fraud based on constructing restructuring reserves to manipulate income at Sunbeam Corporation (Cherry 2006). In contrast, large sample research, i.e., research that is dedicated to investigating "the mundane", cannot, by definition, investigate innovation, which is the life-blood of emergent fraud.

Proposition #3: FFR questions should derive from FF practice not the scholarly literature.

Charles Lee's (2003, p. 3) presentation at the AAA Doctoral Consortium argues that "Academic journals are terrible places to start looking for <research> ideas" and "Practitioner journals are a lot better for this." This argument, i.e., that within-profession scholarly letters exchanged between a small subgroup of accounting academics, and ignored outside of the scholarly accounting community, is largely futile and self-serving is also found in Hopwood (2007) and Rayburn (2005).

Practice oriented publications, for example, the *Wall Street Journal*, *The Economist*, blogs about fraud (O'Conner 2012), blogs about auditing (McKenna, 2012), and list serves (Rice 2012), are important alternatives to the scholarly accounting literature as sources of relevant research questions. The former source, i.e., the existing academic literature, is attractive to scholars whose primary research motivations are careerist, i.e., promotion and pay raises, since research questions derived from the academic literature currently predict

success in academic accounting publication. Imitation being the sincerest form of flattery, what better compliment can a scholar pay to a reviewer or editor than to ape the reviewer's or editor's own published work with a dull, derivative manuscript whose greatest virtue is its capacity to ingratiate the author to his or her future reviewers? Any scholar who has endured a year of presentations by accounting scholars has endured large quantities of this pale work. Its common trope is, "Well-known and well-published scholars X and Y found that earnings management / audit fees / auditor switching <insert other easily observed variable from Audit Analytics, Compustat, Word, CRISP databases> are common in industry / market / country A. But does the same result occur in industry / market / country B?"

Research questions derived from the scholarly literature is, given the sad state of the accounting literature, the easy path to publication success. It also produces research that fails to generate interest outside of the narrow subset of, perhaps five, likely reviewers in the narrow subset of the accounting scholarly community whose work is the basis for the dull derivation.

The alternative that we propose is much harder, demanding, satisfying and interesting – to examine research questions that derive from emerging frauds and forensic practice. For example, how frequently does accounting research investigate if, by whom, and how a financial crime was committed as a part of a broader social science investigation?

We propose a method that seeks answers to such questions, and, has an ultimate goal of creating useful representations. The creation of useful representations is a goal shared among art, music, social science research, and professional practices including law and accounting (cf. Becker 1986). Representations are abstractions or models of some aspect of

social reality. Good representations share two characteristics: they are incomplete and useful. For example, roadmaps are good representations because they omit most everything a driver does not need but include most everything that a driver does need. Accounting examples of the creation and use of representations abound; financial statement auditors create representations that opine on the fairness of a company's financial statements, managerial accountants create useful representations of the cost of a constructed dam or of a manufactured perfume, and, financial archival researchers create useful representations of how industry and corporate governance influence earnings management. However, to whom, and why, representations are useful varies considerably. Consistent with these differing needs for information, we propose that good representations, which are created by fraud examiners, would help determine if, why, how, when, and by whom a fraud was committed. Good representations created by forensic accountants are those that are useful to resolving economic disputes, including those involving legal proceedings. One important distinction -- that is relevant to this exploration -- is whether the consumer of the representation is from the same guild, that is, shares the same language, and assumptions, as its creators.

The consumers of the representations created by accounting social scientists versus forensic accountants differ. Currently, the primary consumers of the representations created by accounting social scientists are, regrettably, other accounting social scientists. But, an important advantage of forensic methods is their potential to increase the readership of, and interest in, accounting scholarship. Consistent with Professor Judy Rayburn's (2005) Presidential remarks to the AAA, it seems unlikely that accounting research that emulates the current archival and financial research found in top accounting journals will attract

interest beyond a narrow subset of the scholarly accounting community. In contrast, forensic accounting research based in rigorous case study methods, and that addresses emerging issues in fraud and deception, holds great promise for expanding interest in accounting scholarship representations beyond the currently dominant researcher-to-researcher communication pattern.

Proposition #4: FFR should avoid the easy, lazy dominant path of publication success in AAA journals of large-sample research based in widely distributed, publicly available datasets.

Publishing is hard; the personal experience of one of the authors proves that writing even a bad scholarly paper requires many hours of dedication and perseverance. Add to this long review times and the increasing publication requirements of most Universities and you have a perfect storm that produces a whiteout of ingratiating imitation that eschews innovation. Given these competitive pressures, only risk-seeking scholars will explore an uncertain data source, an emerging fraud or unique accounting control system, or a breaking scandal. It is much safer, particularly given their ability to ape previous research, to march out the (now overused) Audit Analytics and WRDS databases for another spin at a research question derived from a paper published by a well-known accounting scholar.

Much of the accounting research literature has succumbed to this seduction, i.e., of answering uninteresting, derivative, “arm-chair” research questions that require no engagement with, or understanding of, professional practice, with a few clicks of the mouse using standardized, large sample, publicly available data sets (e.g., Audit Analytics, WRDS). To these scholars, accounting research questions are those that are answerable from one’s office, with strong econometric and mathematical skills and little understanding

of the meaning and richness of what these data mean in business, accounting and finance. A dull, derivative literature built on conformity and irrelevance is the sure result.

In contrast, professional fraud investigations are case and incident focused. In fraud investigation, cases are chosen based upon the interests of the legal system, e.g., prosecuting a fraud, or a client seeking an investigation of an incident with likely legal implications. Fraud investigations may be classified into two categories: (1) financial statement fraud^v, sometimes called “Treadway Commission” fraud, concerns the creation and dissemination of materially misleading financial statements, and, (2) asset theft (Davia 2000). Of these two types of fraud, the former category, that is financial statement fraud, often concerns publicly reported events that are available from standardized archival databases. Because of data availability, financial statement fraud is more likely to be investigated using a cross-sectional, large-sample method. In contrast, asset theft fraud is more likely to share the case and incident focus of the FF investigations that are conducted in professional accounting practice. For example, in our sample, 29% of the observations, and 48% of TAR publications, are empirical, archival financial investigations. In contrast, 13% of the overall sample, and 0% of TAR publications, are qualitative, empirical investigations.

Accordingly, one could summarize the likely data sources and resulting investigations of financial statement fraud research as “shallow but wide”; that is, financial statement fraud research often examines a large sample (wide) at a non-detailed level (shallow). In contrast, the likely data sources and resulting investigations of asset theft research are “deep but narrow”, that is, they investigate a single incident or organization (narrow), in detail (deeply) (cf. Stone 1990). For example, Farber (2005) examines Board of Directors and Audit Committee characteristics, before and after a financial statement fraud,

in a sample of 87 publicly held companies, that is, a “shallow and wide” investigation. In contrast, published studies related to asset fraud are more often case studies, e.g., Durtschi (2003), Dee and Durtschi (2010a, 2010b) that focus on a single organization or fraud incident in depth. In case study, i.e., “deep and narrow” research investigations, forensic accounting practice and research investigations are likely to share a question-driven, “customized-to-case” methodology, and, detailed analysis of incidents and their contexts (cf. Miles and Huberman, 1994). For example, the Tallahassee BeanCounter cases (Dee and Durtschi 2010a, 2010b; Durtschi 2003) describe clever asset frauds in the accounting system of a minor-league baseball team. The evidence presented herein suggests that, in FFR, the rewards are higher for “shallow and wide” versus “deep and narrow” research. However, in opposition to this rewards structure, we argue that the more difficult, and interesting, path for FFR is “deep and narrow.”

Proposition #5: FF Researchers must learn forensic investigation methods.

Researchers applying case and incident focused methods of investigating FF accounting issues share, with accounting professionals, a need to acquire training and expertise in FF investigation methods and practices. Fortuitously, the increasing availability of university classes in FF^{vi} makes it more likely that accounting scholars can and will acquire these skills. In contrast, “shallow and wide”, i.e., large sample studies, of financial statement fraud require the traditional financial and archival research knowledge and methods that currently dominate the top-rated accounting journals and PhD programs. To date, we are aware of only one accounting PhD programs that includes formal training in forensics, fraud investigation, and criminology (West Virginia University – see Pearson 2011). Though such an approach would be contrary to some theories, e.g., see Tuttle and

Dillard (2007) which predicts that academic accounting departments will increasingly eschew innovation in favor of the safety of imitating market leaders (e.g., Top 20 accounting departments), we argue that PhD education should include training in FF investigation methods and practices.

Summary: Removing the Normal Science Straitjacket from FFR

If FFR is to matter, beyond assisting another generation of accounting scholars in obtaining tenure and promotion, then what sort of method should a forensic accounting research method be? This paper began consideration of this issue by deliberating the nature and practice of professional forensic accounting and fraud investigation. Within professional accounting and fraud investigation practice, there exist a set of well-developed, effective methods, many of which will likely apply case-study based forensic accounting investigations. However, the two categories of fraud that are often discussed in forensic accounting will likely give rise to differing research methods and genres. Financial statement fraud is likely to principally be investigated using "shallow and wide" investigative methods, that derive from current financial and archival accounting research methods and practices. In contrast, asset theft fraud is more likely to apply methods and practices that simulate the case study methods found in professional forensic accounting and fraud investigation. Further, theories co-vary with methods (Chua 1986; Stone 1990); forensic accounting methods are likely to differ between professional and academic investigations, and between large-sample, financial fraud research, versus, small sample, asset theft fraud research. In addition, the nature and quality of evidence is likely to differ between professional and academic investigations, and, between large sample and small sample academic fraud investigations.

Hence, there likely exist multiple, useful forensic accounting research methods. A more useful and enlightened approach is likely to be an “ecumenical” approach to method choice, in which methods and practices are adapted or discarded as needed to investigate interesting cases and emerging fraud issues. The alternative approach, that many argue exists now, is of an implicit Orthodoxy and approved FF accounting research method that leads to dull, derivative work. A growing frustration among accounting scholars (e.g., see Tuttle and Dillard, 2007) argues that the metaphoric tail, i.e., research methods and data sources, is, in many scholarly accounting genres, wagging the dog, i.e., determining the allowable research questions. As the authors can attest, few exercises are as painful as reading research where research questions ape existing published papers, and the principal goal is an investigation that uses easy accessed, publicly available, quickly analyzed data. Accounting professionals deserve better from accounting scholars – and accounting scholars deserve a more important, consequential role in life -- than generating an increasingly irrelevant and arcane (dead) body of accounting scholarship.

Given that good FFR, i.e., FFR that matters, is the investigation of the emergent, the new, and the innovative, FFR will require more frequent re-invention than will other areas of accounting scholarship. Hence, a key attribute of FFR that matters will be its continual re-imagining and re-definition, as Hopwood argues must also occur in the large scholarly discipline of auditing and accounting:

There were then, there have been in the intervening period, and there are now people who think that they know what accounting—and auditing for that matter—is. How wrong these people are. They are the ones who list the attributes of the *status quo*, seemingly wanting to confine the new to being within the boundaries of the old. They have no conception that accounting and accounting research have repeatedly changed across time, and when things change they become what they were not, at least in part (Hopwood

2007, p. 1367).

Table 1 – Factor Analysis Results

Journal Quality	Metric Type	Factor	
		1	2
AWCR	CB	0.952	0.260
h_index	CB	0.909	0.411
G_index	CB	0.902	0.425
JAge	JP	0.874	0.438
AAA_member	JP	0.823	0.232
ARC	EE	0.306	0.920
Moosa_Rank	EE	0.306	0.906
RCSurvey	EE	0.353	0.795
Rotated Eigenvalues		4.30	2.96
% variance explained		53.74	37.03

Factor Loadings Shown in **Bold**

Extraction Method: Principal Components; Rotation Method: Varimax with Kaiser Normalization (3 iterations)

Codes for Metric Type: CB = citation-based index, JP = Journal prestige, EE = expert evaluation

Table 2 – Frequency Counts

Panel A: Topical Coverage of FFR Literature

Topic	#	%
Audit	58	63.0
Financial	22	23.9
Systems	6	6.5
Managerial	3	3.3
Tax	2	2.2
<u>Intl</u>	<u>1</u>	<u>1.1</u>
Total	92	100.0

Panel B: Cross Tabulation: Topic By Method

Method	Topic			Total #	%
	Audit	Fin	Other		
Empirical - Archival (Quantitative)	8	16	3	27	29.3
Empirical – Experiment	23	1	1	25	27.2
Empirical – Qualitative	9	1	2	12	13.0
Empirical – Survey	4	1	3	8	8.7
Formal Economic Model	3	1	2	6	6.5
Literature Review	4	1	1	6	6.5
<u>Other</u>	<u>6</u>	<u>1</u>	<u>1</u>	<u>8</u>	<u>8.7</u>

Method	Topic			Total #	%
	Audit	Fin	Other		
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Empirical – Survey	4	1	3	8	8.7
Formal Economic Model	3	1	2	6	6.5
Literature Review	4	1	1	6	6.5
<u>Other</u>	<u>6</u>	<u>1</u>	<u>1</u>	<u>8</u>	<u>8.7</u>
Total	57	22	13	92	100.0

Table 3 - Cross Tabulation of Methods by Journals

Methods	Journals						
	AH	TAR	AAJTP	BRIA	CIJA	Other	Total
Empirical - Archival (Quantitative)	2	13	7	0	0	5	27
Empirical – Experiment	1	7	11	6	0	0	25
Empirical - Qualitative	3	0	0	0	4	5	12
Empirical - Survey	2	1	2	1	0	2	8
Formal Economic Model	0	4	1	0	0	1	6
Literature Review	4	0	1	0	0	1	6
<u>Other</u>	2	1	2	0	3	0	8
Total	14	26	24	7	7	14	92
% by columns	15.2%	28.3%	26.1%	7.6%	7.6%	15.2%	100%

Table 4 – Descriptive Statistics: Predictor Variables

Variable	Mean	Std Dev	Kappa
Financial Topic	0.239	0.429	0.942
Audit Topic	0.630	0.485	0.977
Econ Theory	0.304	0.463	1.000
Quantitative	0.739	0.442	0.917

Kappa = Cohen's Kappa coefficient of inter-rater agreement
n = 92 for all variables

Table 5 - Regression Results

Panel A – Dependent Measure = Factor 1, Journal Prestige and Citation-Based Measures
(significant results shown in **bold**)

	B	Std Err	T	p
Constant	-0.579	0.306	-1.892	0.062

Financial Topic	0.539	0.339	1.590	0.115
Audit Topic	0.227	0.286	0.794	0.429
Quantitative	0.082	0.227	0.361	0.719
Econ Theory	0.811	0.234	3.468	0.001

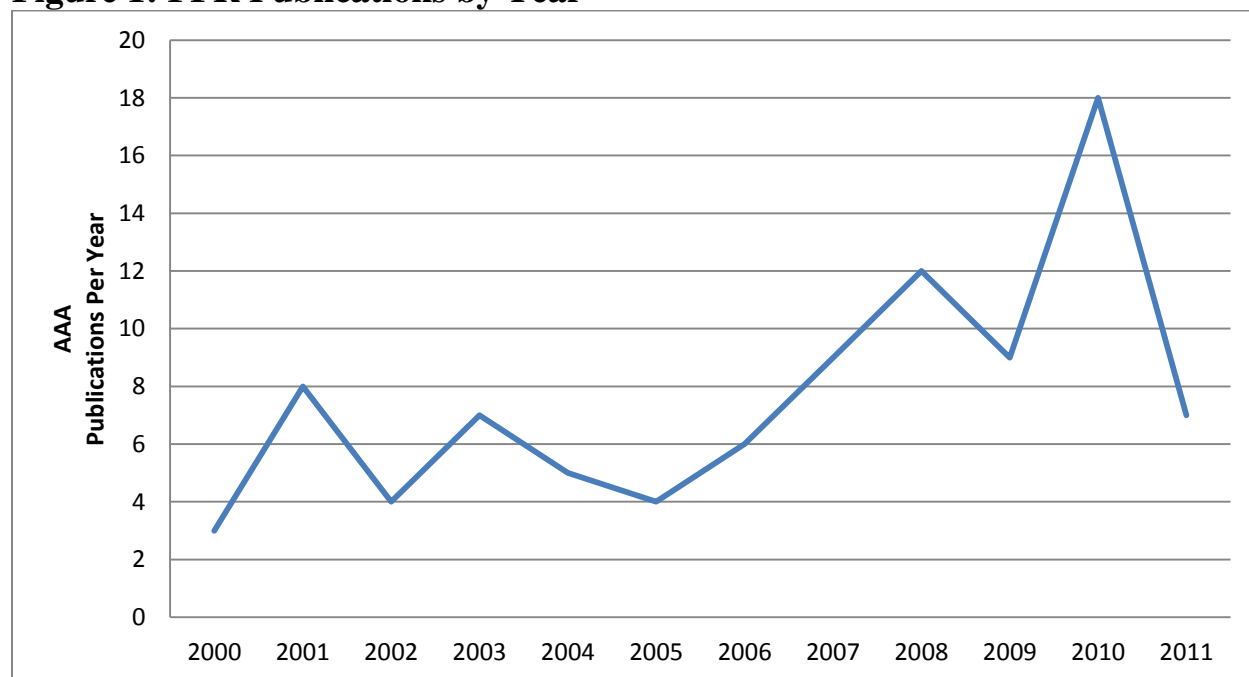
Adjusted $r^2 = 0.193$

Panel B – Dependent Measure = Factor 2, Expert Evaluation (EE) Measures (significant results shown in **bold**)

	B	Std Err	T	p
(Constant)	-1.574	0.277	-5.683	0.000
Financial Topic	0.433	0.307	1.413	0.161
Audit Topic	0.839	0.258	3.247	0.002
Quantitative	1.234	0.206	6.004	0.000
Econ theory	0.098	0.212	0.462	0.646

Adjusted $r^2 = 0.340$

Figure 1: FFR Publications by Year



*Note – 2011 includes data through September; if projected over the entire year the number of 2011 observations (7) increases to 10.5

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Appendix – Journal Quality Metrics

Table A1 – Journal Quality Metrics – Descriptive Statistics

<u>Variable</u>	<u>Mean</u>	<u>Std Dev</u>	<u>Min</u>	<u>Max</u>
RCSurvey	0.653	0.382	0	1
ARC	4.658	0.831	3.0	5.3
Moosa_Rank	4.712	0.749	3.0	5.3
JAge	35.457	29.831	0	81
AAA_member	5,504.467	5,046.688	247	11,215
h_index	61.910	56.919	1	149
g_index	102.390	93.684	1	245
AWCR	1763.370	2390.485	1	5538

n = 92 for all variables

Table A2 – Correlations of Independent and Journal Metric Variables

	IV: Audit	IV: Econ Theory	IV: Quant	JQ: RC Survey	JQ: ARC	JQ: Moosa_ Rank	JQ: JAge	JQ: AAA_ member	JQ: h_ index	JQ: g_ index	JQ: AWCR
IV: Financial	-0.732***	0.405***	0.159	-0.005	0.101	0.174*	0.232	0.315***	0.278***	0.271***	0.280***
IV: Audit		-0.277***	-0.147	0.122	0.119	0.067	-0.067	-0.115	-0.078	-0.066	-0.115
IV: Econ Theory			0.339***	0.402***	0.281***	0.264**	0.511***	0.377***	0.483***	0.488***	0.481***
IV: Quant				0.619***	0.443***	0.502***	0.464***	0.077	0.409***	0.410***	0.372***
JQ: RCSurvey					0.741***	0.697***	0.751***	0.289***	0.655***	0.666***	0.585***
JQ: ARC						0.964***	0.627***	0.565***	0.649***	0.659***	0.505***
JQ: Moosa_ Rank							0.617***	0.550***	0.649***	0.658***	0.507***
JQ: JAge								0.723***	0.982***	0.983***	0.972***
JQ: AAA_member									0.813***	0.813***	0.763***
JQ: h_index										0.999***	0.982***
JQ: g_index											0.978***

IV = independent variable, JQ = journal quality
n = 92, *** p < 0.01, ** p < .05, * p < .10

Endnotes

ⁱ Given the growth in the availability of forensic and fraud education, and the increasing education expectations of professions as they mature, the educational requirements to enter FF professional will likely increase.

ⁱⁱ According to Prof. Crumbley, the *Journal of Forensic Accounting*, which Prof. Crumbley edited from 2000 to 2008, is now inactive.

ⁱⁱⁱ This investigation focuses on the relationship between forensic accounting practice and research. Accordingly, we omit education-related papers from the literature review as tangential to the present investigation. However, we plan research specifically investigating the emerging and important FF education literature.

^{iv} This failing of accounting research is primarily North American. In fact, a rich body of case research exists in several European accounting journals, including *Accounting, Organizations and Society* and *Management Accounting Research*.

^v While other types of frauds include misstating information that is relied on by third parties (e.g. tax fraud), we primarily focus on financial statement fraud herein because of its frequency in the research literature.

^{vi} See the previously mentioned special issue of *Issues in Accounting Education* (November, 2008) for information about University programs in FF investigation.