

## **A Preliminary Investigation of the Necessary Skills, Education Requirements, and Training Requirements for Forensic Accountants**

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Massive accounting scandals at Enron, WorldCom, and many others, as well as the collapse of one of the “Big Five” accounting firms have increased the public’s awareness of fraud and fraudulent financial reporting. This increased awareness of fraud, along with recent financial catastrophes including the collapse of investment banks and major turmoil on Wall Street has made the need for forensic accountants even greater in recent months (Solnik, 2008). The American Institute of Certified Public Accountants (AICPA) has called forensic accounting one of the “hot” new careers in accounting and indicates there will be a shortage of fraud professionals in the next decade (AICPA, 2004). In fact, AICPA recently announced a new CPA specialty credential in forensic accounting called Certified in Financial Forensics (CFF), designed for CPAs with specialized forensic accounting expertise (AIPCA, 2008). The FBI has designated fraud as a major focus of their efforts, hoping to curb terrorism relating to new homeland security initiatives. There is a need for forensic accountants in almost all areas of business, especially public accounting, corporations, the CIA, and local government (Florida Atlantic University, 2009).

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Forensic accounting, once considered a unique specialty field, has now been propelled to a top career choice for students graduating with accounting degrees. According to the Association of Certified Fraud Examiners (ACFE, 2008), many universities have added courses that address fraud-related activities and are supported by the ACFE.<sup>1</sup> Particularly with the passage of the Sarbanes-Oxley Act, forensic accounting will become a bigger part of the accounting curriculum in the future. According to the Robert Half 2009 Salary Guide, even in the current economic environment, there is still a strong demand for accountants, particularly those with forensic experience (Robert Half, 2009). In a recent survey by the AICPA, two out of three accountants indicated that their forensic practices have grown over the past year (PR Newswire, 2008). Accordingly, this research study examines the professional community's perceptions of the necessary skills for forensic accountants, as well as the education requirements and training requirements considered important to the profession. Because the field of forensic accounting is so new, there is little academic research to date in this area, especially in the area of forensic accounting education.

## **1. Description of the study**

A prior study surveyed academics and practicing CPAs for their opinions on the importance and relevance of forensic accounting education, as well as their opinions on course content in forensic accounting courses (Rezaee *et al.*, 2004). In this prior study, both the academics and CPAs indicated that some of the most important items that should be included in forensic accounting courses are: fundamentals of fraud, financial statement fraud, types of fraud, cooking the books and problems in accounting, anti-fraud controls,

and internal control evaluation. Another study (Crumbley *et al.*, 2007) indicates that forensic accounting is much broader than fraud detection and involves litigation and disputes in which attorneys hire financial experts to gather evidence with regard to complex transactions and valuation issues. The forensic accountant therefore needs a broader skill set beyond just fraud detection and auditing competence.

The current study complements and extends the Rezaee study because the current study surveys fraud and forensic professionals for their perceptions of the necessary skills and characteristics for forensic accountants, as well as the education requirements and training requirements considered important. The perceptions of fraud and forensic professionals are important because these professionals are the individuals working in the field every day, and they should have the best knowledge of what is important to be successful in the profession. While the Rezaee study provides useful insights for developing course content, the current study sheds some light on what skills are needed by forensic accountants, such as basic accounting skills, verbal skills and data analysis skills. Knowledge of what skills are important for success can help universities design and select other courses to be completed by forensic accounting students. For example, an additional public speaking course may be required. The current study also examines characteristics necessary for forensic accountants, such as personality traits. This type of knowledge may help educators steer appropriate students into a career in forensic accounting. The current survey results for education and training requirements should also be useful to students and to the academics who advise them.

There are two parts to this study. Part One involves surveys of and discussions with audit partners from each of the Big Four and several other accounting firms, as well

as professionals from other organizations, including several who are Certified Fraud Examiners. The purpose of these surveys and discussions was to formulate questions to be asked during Part Two of the research study. During Part One, open ended questions were asked. Sample questions included:

1. What type of education (degree, major, etc.) do you think is most appropriate for a forensic accountant?
2. What skills do you think are most important for a forensic accountant to possess?
3. What characteristics do you think are important for a forensic accountant to possess?
4. What is a typical career path for a forensic accountant in your firm? In other firms?
5. If you could design an ideal university curriculum for your future forensic accountants, what would it entail?
6. What do you think the demand for forensic accountants will be like in the next 5 years? In the next 10 years? In the next 20 years?
7. What types of computer forensic skills are needed by forensic accountants?
8. What types of investigation skills are needed by forensic accountants?

Areas investigated in Part One of the study are listed below, along with the rationale for including them. For each of the skills or traits listed below, we investigated how their importance is perceived by the profession:

- *Basic accounting skills* – Accounting is widely regarded as the “language of business” and it seems obvious that a forensic accountant should have strong basic accounting skills.

- *Level of education/ degrees obtained* – Part of the goal of this study is to determine the demand for an undergraduate minor or certificate in forensic accounting, and also for options at the graduate level.
- *Written communication skills* – Forensic accountants need to document their work. A well-written report by a forensic accountant can be a vital tool in litigation, and may help to impress the judge/jury (Crumbley *et al.*, 2007).
- *Verbal communication skills* – Part of the job of the forensic accountant is to go into the field and speak to company personnel who may or may not be involved with the suspected fraud (Crumbley *et al.*, 2007). In addition, forensic accountants are often called to be expert witnesses and testify during litigation, presenting often complex evidence to the jury in an understandable manner (Sanchez and Trewin, 2004).
- *Analytical skills* – Analytics can be of use to forensic accountants because they often reveal unusual relationships that need to be examined. Some forensic accounting experts feel that if the auditors of HealthSouth had properly applied analytical procedures, they may have uncovered the over \$1 billion fraud that they failed to find for 17 years (Crumbley *et al.*, 2007).
- *Prior audit experience* - Some fraud professionals recommend at least two years of auditing experience, followed by a position in a law enforcement agency working on fraud related cases to gain a competitive edge in the profession (Wells, 2003).
- *Personality traits* - There is anecdotal evidence that good people skills and an aggressive personality are useful traits for forensic accountants (Wells, 2003).

- *Computer forensics skills* - Today, almost every fraud involves the use of computers and digital documents (Smith, 2005).
- *Data mining skills* – Data mining, which uses mathematical algorithms to seek hidden patterns in data, can be used by forensic accountants to review controls and discover fraud, abuse, and corruption (Crumbley *et al.*, 2007).
- *Background in criminal justice/law enforcement* - Since September 11, 2001, detecting and preventing terrorist attacks is a huge concern for the U.S. government, and forensic accountants have been playing a major role in tracing terrorists around the world (Florida Atlantic University, 2008). Terrorists are thought to obtain some of their funds by exploiting U.S. programs such as workers compensation, unemployment, welfare and health programs, food stamps, and other programs (Brooks *et al.*, 2005).
- *Interviewing skills* – A forensic accountant often must interview executives who may or may not be suspects. They need to be alert to both verbal and nonverbal cues to determine whether the individual is being deceptive (Crumbley *et al.*, 2007).
- *Experience with Benford's Law* - Benford's law, which states that the distribution of digits in natural numbers follows a predictable pattern, has been touted as a simple and effective tool for helping the auditor uncover fraud (Durtschi *et al.*, 2004).
- *Professional designations* - Some accounting firms will hire individuals for forensic accounting positions only if they have earned the Certified Fraud Examiner credential (CFE), some firms will hire individuals without that

credential (Wells, 2003). A recent study indicates that CFEs earn, on average, twenty-two percent more than their non-certified colleagues (Business and Finance Week, 2008).

Based on the answers provided to us in Part One, we developed a survey and administered it to audit professionals and other fraud and forensic professionals in Part Two. Over 150 professionals completed the survey.

## **2. Methodology and Sample**

We developed a self-administered survey instrument based on our discussions with fraud professionals in Part One. The survey included multiple-choice questions, questions answered on a Likert-type scale, and open-ended questions. For the Likert-type scale questions, participants were asked to rate on a seven-point scale the importance of sixteen skills for a forensic accountant. They were also asked to rate the importance of ten characteristics for a forensic accountant. The scales were anchored at each end with the descriptors “extremely unimportant” and “extremely important,” respectively. For the purpose of analysis, the descriptor “extremely unimportant” was given a weight of 1, while the descriptor “extremely important” was given a weight of 7. The midpoint of the scale “neither” was given a weight of 4. Participants also answered questions about the future demand for forensic accountants and also demographic questions.

The survey was administered to a wide variety of fraud and forensic professionals. A total of 159 useable responses were obtained. The demographic profile

of the sample is shown in Table 1. Approximately 70% of the sample was men, and 62% of the sample was over the age of 40 years.

### **3. Results**

The results of our analysis are presented in the following sections. We first present the findings on the perceived importance of skills and characteristics of forensic accountants. This is followed by education requirements, demand for forensic accountant, and finally need for computer forensic techniques and software tools.

#### ***Importance of skills and characteristics***

We asked the participants to rate the importance of sixteen skills and ten characteristics for a forensic accountant. As can be seen in Tables 2 and 3, the participants saw all of the skills and characteristics as at least somewhat important for a forensic accountant. There were, however, variations in the relative importance of the skills and characteristics. Table 2 lists the mean rating of each skill for a forensic accountant. Table 3 lists the mean rating of each characteristic for a forensic accountant.

The skill ranked highest in terms of importance is “analytical skills,” followed closely by “basic accounting skills,” “problem solving skills,” and “data analysis skills.” The characteristics ranked highest in terms of importance are “persistence,” and “skepticism,” followed closely by “puzzle skills” and “people skills.”



### ***Education***

We asked the respondents to answer some multiple choice questions regarding education for and typical career paths of forensic accountants. First, we asked them, “Other than Accounting, what undergraduate degree major do you think is most appropriate for a forensic accountant?” The possible choices were: Computer Information Systems, Economics, Legal Studies, or Other. Sixty percent of the respondents answered “Computer Information Systems” and twenty seven percent answered “Legal Studies.” Table 4 presents the results for this question.

We also asked, “What is the highest level of education that you think is needed to be a successful forensic accountant?” Fifty nine percent of the participants indicated that an undergraduate degree is the highest degree necessary, while thirty nine percent felt that a master’s degree is necessary.

Finally, participants were asked, “In your firm, the typical career path for a forensic accountant is:” Forty three percent of participants indicated that the typical career path is to graduate with a degree in accounting and start in the audit department of the firm.

### ***Demand for Forensic Accountants***

We asked the respondents some questions about the demand for forensic accountants in the future. We asked about the demand for forensic accountants in the next 5 years, the next 10 years, and the next 20 years. As can be seen in Table 5, the majority of respondents feel that the demand for forensic accountants will increase well

into the foreseeable future. In fact, 94% felt that the demand for forensic accountants would increase in the next 10 years.

Respondents were also asked if they felt that there will be enough forensic accountants available to meet the demand in the next 5 years, the next 10 years, and beyond the next 10 years. As can be seen in table 6, many participants were unsure if the supply of forensic accountants would be enough to meet the demand in the future.

### ***Computer forensic techniques and software tools***

Respondents were asked, “In general, do forensic accountants need to know computer forensic techniques?” Eighty four percent of the respondents answered “yes” to this question.

We asked the respondents how important four different software tools are for forensic accountants: ACL, IDEA, Data Mining, and Digital Evidence Recovery. The scales were anchored at each end with the descriptors “extremely unimportant” and “extremely important,” respectively. For the purpose of analysis, the descriptor “extremely unimportant” was given a weight of 1, while the descriptor “extremely important” was given a weight of 7. The midpoint of the scale “neither” was given a weight of 4. Table 7 shows the results. The respondents rated each of these four tools as important, with Data Mining being rated as the most important with a mean of 5.83.

## **4. Conclusion**

This study is a preliminary investigation of the necessary skills, education requirements, and training requirements for forensic accountants. We surveyed practicing

fraud and forensic professionals in order determine the perceptions of the professional community. Since little research exists in this area; our research is exploratory in nature. We found that all of the skills investigated in this study are potentially important for forensic accountants. The majority of the survey respondents indicated that a bachelor's degree is the highest level of education necessary to be a successful forensic accountant. This may have implications for universities when designing their curriculum. In addition, the respondents indicated that they feel the demand for forensic accountants will continue to be high. Universities should consider this when designing curricula and students will also find this information valuable when deciding on a major and considering career paths.

Much more research in this area is needed. Universities should evaluate their course offerings and implement programs for assessment of their courses. Firm training programs should similarly evaluate course content.

**TABLE 1: Demographic Profile of Sample**

<b>Gender</b>	<b>Frequency</b>	<b>Percent**</b>
Male	109	69.4
Female	48	30.6
<b>Total</b>	<b>157*</b>	<b>100.0</b>
<b>Age</b>		
21-25	9	5.8
26-30	10	6.4
31-35	18	11.5
36-40	23	14.7
40+	96	61.5
<b>Total</b>	<b>156*</b>	<b>100.0</b>
<b>Level of Education</b>		
High School	0	0.0
College	82	52.9
Masters	63	40.6
JD	5	3.2
Ph.D.	5	3.2
<b>Total</b>	<b>155*</b>	<b>100.0</b>
<b>Experience with Business Forensics</b>		
No experience	35	22.9
0-2 years	28	18.3
3-5 years	25	16.3
6-10 years	18	11.8
10+ years	47	30.7
<b>Total</b>	<b>153*</b>	<b>100.0</b>
<b>Experience with Accounting</b>		
No experience	18	11.9
0-2 years	20	13.2
3-5 years	12	7.9
6-10 years	19	12.6
10+ years	82	54.3
<b>Total</b>	<b>151*</b>	<b>100.0</b>
<b>Experience with Auditing</b>		
No experience	12	7.7
0-2 years	22	14.2
3-5 years	23	14.8
6-10 years	22	14.2
10+ years	76	49.0
<b>Total</b>	<b>155*</b>	<b>100.0</b>

\* Does not total 159 because some participants left this question blank.

\*\*May not add to 100.0 because of rounding.

**TABLE 2: Ratings of the Importance of the Following Skills for a Forensic Accountant**

<b>Skill</b>	<b>Mean</b>	<b>(Standard Deviation)</b>
Basic accounting skills	6.31	(1.226)
Technical accounting skills	6.00	(1.062)
Analytical skills	6.51	(1.182)
Report writing skills	5.96	(1.239)
Verbal communication skills	6.11	(1.174)
Basic computer skills	6.05	(1.081)
Computer forensics skills	5.85	(1.296)
Interviewing skills	6.25	(1.138)
Data analysis skills	6.27	(1.127)
Problem solving skills	6.30	(1.095)
Public speaking skills	5.29	(1.093)
Business valuation skills	5.03	(1.046)
Knowledge of the U.S. tax code	4.88	(1.162)
Knowledge of U.S. criminal law	5.28	(1.030)
Knowledge of U.S. civil law	5.23	(1.048)
Experience with Benford's law	4.94	(1.193)

Note: The scales were anchored at each end with the descriptors “extremely unimportant” and “extremely important,” respectively. For the purpose of analysis, the descriptor “extremely unimportant” was given a weight of 1, while the descriptor “extremely important” was given a weight of 7. The midpoint of the scale “neither” was given a weight of 4.

**TABLE 3: Ratings of the Importance of the Following Characteristics for a Forensic Accountant**

<b>Characteristic</b>	<b>Mean</b>	<b>Standard Deviation</b>
Experience in auditing	5.80	(1.061)
Knowledge of the legal system	5.50	(0.931)
Confident/assertive personality	5.75	(1.096)
Persistence	6.12	(1.157)
“People” skills	6.04	(1.094)
“Puzzle” skills	6.08	(1.126)
Skepticism	6.12	(1.151)
Flexibility	5.91	(1.166)
Works well in a team	5.84	(1.243)
Willing to travel	5.46	(1.282)

Note: The scales were anchored at each end with the descriptors “extremely unimportant” and “extremely important,” respectively. For the purpose of analysis, the descriptor “extremely unimportant” was given a weight of 1, while the descriptor “extremely important” was given a weight of 7. The midpoint of the scale “neither” was given a weight of 4.

**TABLE 4: Education**

<b>Undergraduate degree major most appropriate</b>	<b>Frequency</b>	<b>Percent**</b>
Computer Information Systems	96	60.4
Economics	5	3.1
Legal Studies	43	27.0
Other	15	9.4
<b>Total</b>	<b>159</b>	<b>100.0</b>
<b>Highest Level of Education Needed to be Successful</b>		
Undergraduate Degree	93	58.5
Masters Degree	62	39.0
Other Degree	4	2.5
<b>Total</b>	<b>159</b>	<b>100.0</b>
<b>Typical Career Path</b>		
Start as intern	21	13.2
Graduate with degree in forensic accounting & join firm	12	7.5
Graduate with degree in accounting and start in audit department of firm	68	42.8
Work in legal profession before joining firm	1	0.6
Work in law enforcement before joining firm	6	3.8
Other	51	32.1
<b>Total</b>	<b>159</b>	<b>100.0</b>

\*\*May not add to 100.0 because of rounding.

**TABLE 5: Demand for Forensic Accountants**

Question	Mean	(Standard Deviation)
The demand for forensic accountants in the <i>next 5</i> years will:	4.46	(0.646)
The demand for forensic accountants in the <i>next 10</i> years will:	4.34	(0.651)
The demand for forensic accountants in the <i>next 20</i> years will:	4.20	(0.728)

Note: The scales were anchored at each end with the descriptors “decrease significantly” and “increase significantly,” respectively. For the purpose of analysis, the descriptor “extremely decrease significantly” was given a weight of 1, while the descriptor “increase significantly” was given a weight of 7. The midpoint of the scale “neither increase nor decrease” was given a weight of 4.

**TABLE 6: Availability of Forensic Accountants**

	Frequency	Percent**
Will there be enough forensic accountants available to meet the demand in the <i>next 5</i> years:		
Yes	21	13.5
No	96	61.5
Not sure	39	25.0
<b>Total</b>	<b>156*</b>	<b>100.0</b>
Will there be enough forensic accountants available to meet the demand in the <i>next 10</i> years:		
Yes	39	25.3
No	45	29.2
Not sure	70	45.5
<b>Total</b>	<b>154*</b>	<b>100.0</b>
Will there be enough forensic accountants available to meet the demand <i>beyond the next 10</i> years:		
Yes	49	31.8
No	25	16.2
Not sure	80	51.9
<b>Total</b>	<b>154*</b>	<b>100.0</b>

\* Does not total 159 because some participants left this question blank.

\*\*May not add to 100.0 because of rounding.



**TABLE 7: Ratings of the Importance of the Following Software Tools for a Forensic Accountant**

<b>Tool</b>	<b>Mean</b>	<b>Standard Deviation</b>
ACL	5.45	(1.297)
IDEA	5.24	(1.232)
Data Mining	5.83	(1.240)
Digital Evidence Recovery	5.82	(1.224)

Note: The scales were anchored at each end with the descriptors “extremely unimportant” and “extremely important,” respectively. For the purpose of analysis, the descriptor “extremely unimportant” was given a weight of 1, while the descriptor “extremely important” was given a weight of 7. The midpoint of the scale “neither” was given a weight of 4.

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*The opinions of the authors are not necessarily those of Louisiana State University, the E.J. Ourso College of business, the LSU Accounting Department, Roosevelt University, the Senior Editor, or the Editor.*

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<sup>1</sup> For a complete description of one college's fraud and forensic curriculum, see (Curtis, 2008)