

## **An Investigation of the Factors that Impact the Perceived Value of Forensic Accounting Certifications**

**Madeline Ann Domino\***  
**Gabrielle Giordano**  
**Mariah Webinger**

### **Introduction**

The traditional role of professional accountants continues to evolve with more accounting professionals assuming roles in forensic support engagements (i.e., forensic accounting services). Prior research suggests that forensic accounting professionals add substantial value to client-attorney relationships (Ponemon 1995). Qualified forensic accountants are in short supply, and the demand for their services is projected to remain strong, given a tenuous economic climate, an ever-changing regulatory environment and projected increases in fraud (Tysiac 2012, Huber 2012, Schiavone 2012, Valenti 2014).

As evidence of this anticipated demand and continued growth, Price Waterhouse Coopers (PwC), KPMG, Deloitte, and Ernst & Young (E&Y) have each created specialty forensic accounting units as have several large regional accounting firms (Van Akkeren and Tarr 2014). The growing interest and need for forensic accountants also has resulted in a proliferation of forensic certifications (Huber 2014), as these credentials may be viewed as a relevant and distinguishing factor in employing forensic accountants (Smith 2015). Baysden (2014) also contends that certifications are important to career advancement.

While rooted in the traditional accounting and auditing disciplines, the training and expertise required for forensic accountants is much broader (Smith and Crumbley 2009) and requires a wide knowledge base and skill set (Crumbley, Heitger and Smith 2011). According to Raghavan (2014, p. 1), “The forensic accountant has to look beyond what the number reveals and comprehend the underlying circumstances with an analytical mindset.” Forensic accounting includes litigation support services, which require professional accountants to use investigative techniques to examine financial records, produce a report, demonstrate legal knowledge, provide opinions, investigate fraud, and sometimes serve as an expert witness. The current climate of fraud also requires the special skill sets that forensic accountants bring to the table (Valenti2014). For instance, a significant need for computer forensic investigators is expected in the future (Tysiac 2012). In addition to technical skills, forensic accountants must have exceptional communication abilities and interviewing skills (Tysiac 2012).

Accounting professionals who wish to provide forensic accounting services have sought ways to market and to differentiate themselves as forensic experts. A common way to demonstrate forensic accounting expertise is to hold a certification related to forensic accounting or to a related field, such as valuations. Robert Half (2015) advocates certifications as these credentials add value for career advancement, improve career prospects and enhance earning power. More employers in the accounting industry now focus on specializations and place more value on certifications as a means of differentiating top candidates (Corkern, Parks and Morgan

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\* The authors are, respectively, Associate Professor at Mercer University, Revenue Agent at the Internal Revenue Service, Assistant Professor at John Carroll University

2013). While many forensic certifications are offered by different organizations, minimal research has attempted to assess the perceived value of forensic certifications or explored the factors which may make one certification be perceived as more valuable than another.

According to DiGabrielle and Dennis (2015) there is a need for more research in forensic accounting in order to advance our understanding of the field. The aim of this research is to evaluate the perceived value of forensic accounting certifications. Sixteen commonly held forensic certifications were identified and examined by the researchers. Based on prior research, nine characteristics of the forensic certifications were identified. Opinions of experts, those who hire forensic accountants and who are active in forensic support services, were then elicited to weigh the nine characteristics by importance to forensic certifications. The experts' weighing was then applied to the characteristics found in each of the 16 forensic certifications. Results show that these experts perceive three forensic certifications to be most valuable: Certified Financial Forensics (CFF), Certified Forensic Accountant (CRFAC), and Accredited Business Valuation (ABV).

This research makes several contributions to the accounting literature. First the study extends prior research on forensic accounting certifications and answers the call for more research in this area. Second, the study directly contributes to the research in forensic accounting by investigating the factors which may impact the perceived value of forensic certifications. The results also provide empirical evidence regarding the perceived value of forensic certification. The research is of value to both practitioners and academics alike. The results may have implications to the training, marketing, and hiring forensic accountants. Accounting professionals who desire to expand their career prospects and enhance their earnings power may benefit from knowing which forensic certifications are perceived to be the most valuable in the marketplace. These research findings are helpful to academics who design academic programs in forensic accounting and who counsel students desiring to pursue a career in this specialty. To date, minimal research has explored these topics.

The remainder of this paper is organized as follows: First, a review of the pertinent literature is presented, followed by an overview of the methodology and related results. Finally, a discussion of the research findings and implications is presented.

## **Literature Review**

The demand for forensic accountants is expected to continue to grow as more accounting professionals engage in forensic accounting engagements (Valenti 2014). Tysiac (2012) estimates that revenue from forensic accounting services will grow 7% annually, reaching approximately \$6.0 billion by 2017. The American Institute of Certified Public Accountants (AICPA) issued a statement on Business Valuation/Forensic Litigation Services (AICPA 2015) which provides guidance to professionals to be used in these engagements. According to Huber (2012), there is no question that forensic accounting is a necessary and growing area of practice.

Holders of forensic certifications may be viewed as having more expertise, and offer higher quality of skills and knowledge needed for forensic accounting engagements. For example, Robert Half (2015) lists the Certified Fraud Examiner (CFE) as one of the most marketable credentials available. Tatikonda (2004) and Coe and Delaney (2008) advance the

notion that formal academic programs prepare students to obtain forensic certifications and for careers beyond the traditional accounting services.

Forensic accountants need to have different knowledge and skills as compared to other accounting professionals (Smith and Crumbley 2009). According to Bhasin (2013), forensic accountants need a rather eclectic skill-set, which includes training in communication, accounting, business, auditing, technology, psychology, criminology, courtroom behavior and meta-thinking. Popoola, Ahmad and Samsudin (2014) found that forensic accountants have more knowledge in identifying and analyzing methods aimed at fraud prevention, detection, and response, and their mental attitudes are highly focused on task performance and fraud risk assessment.

Certified Public Accountants (CPAs) are the top choice when an expert witness is needed to testify (Parker 2013). According to attorney Thomas French, “CPAs as expert witnesses have become an invaluable asset to all attorneys who work in the field of complex commercial litigation—with the CPA having the ability to make or break any case. The roles these experts play expand much further than the trial itself, with the CPA proving to be most valuable when brought into the dispute at its earliest stages” (Parker 2013).

Elmore (2004) reviewed the importance, relevance, and delivery of forensic accounting education programs and found a lack of forensic accounting course offerings at the collegiate level. As academia has become more aware of the demand for trained forensic accountants, a number of colleges and universities now offer specific courses and degrees in forensic accounting (Huber 2012). Regrettably, many of the academic forensic accounting programs focus primarily on fraud examination (Smith and Crumbley 2009). Other facets of the curriculum should include digital investigations, criminology, and litigation support services (Smith and Crumbley 2009).

“Many accountants find that their degree alone is insufficient for achieving their career goals so they choose to obtain certifications that move them closer to their goals” (Coe and Delany 2008, p. 49). Traditionally obtaining a CPA designation has been the standard certification for accounting professionals; however, given the expanded skill sets needed in forensic engagements, the CPA designation alone may not be enough (Coe and Delany 2008). While formal academic training may be a viable option for students wishing to gain expertise in forensic accounting, practicing professional accountants may find earning another academic degree prohibitive. One way to obtain the necessary forensic accounting expertise is to leverage their existing professional experience or by obtaining a forensic accounting certification.

While there is a wide array of forensic certifications (Hutchinson, Fleischman and Morris 2003), the perceived value of each certification may not be viewed as equal (Thomson 2013). Davis and Rubin (1976) investigated the perceived benefits of certifications by surveying individuals holding four different certifications. In their study, participants were asked to rank six items dealing with their beliefs about their professional designations. Respondents who were CPAs ranked increased competence and confidence, as well as providing prestige with others in their area of business as top benefits of holding additional certifications.

Forensics accounting certifications may be one way to bolster an accounting professional’s expertise and marketability in forensic support services (Hutchinson et al. 2003).

To date, minimal research has attempted to evaluate the many differing forensic certifications or empirically investigate the factors which may impact a certification's perceived value.

### Methodology

The aim of this research is to evaluate the perceived value of forensic accounting certifications. A discussion of the methodology used in the study is now presented.

### *Forensic Certifications and Characteristics*

Sixteen commonly held forensic certifications were selected for analysis, evaluation, and ranking of perceived value. The selection of the certifications included in the study was based upon prior literature that identifies certifications widely held by accountants who perform forensic services (Crumbley et al. 2011, Huber 2012, Smith 2015). Additionally, a survey of 217 practicing accountants also provided information on widely held forensic certifications (Domino and Webinger 2016). A summary of each certification is found in Appendix A.

Table 1. Alphabetical List of Certifications included in the Study

<b>Certification</b>	<b>Granting Organization</b>
Accredited in Business Valuation (ABV)	American Institute of Certified Public Accountants (AICPA)
Accredited Senior Appraiser (ASA)	American Society of Appraisers
Certified Business Appraisers (CBA)	Institute of Business Appraisers
Certification in Distressed Business Valuation (CDBV)	Association of Insolvency & Restructuring Advisors
Certified Forensic Accountant (CRFAC)	American Board of Forensic Accounting
Certified Fraud Examiner (CFE)	Association of Certified Fraud Examiners
Certified in Financial Forensics (CFF)	AICPA
Certified Financial Planner (CFP)	CFP Board
Certified Fraud Specialist (CFS)	Association of Certified Fraud Specialists, Inc.
Certified Internal Auditor (CIA)	The Institute of Internal Auditors
Certified Insolvency & Restructuring Advisor (CIRA)	Association of Insolvency & Restructuring Advisors
Certified Information Systems Auditor (CISA)	Information Systems Audit and Control Association (ISACA)
Certified Professional Forensic Accountant (CPFAcct)	Institute of Certified Forensic Accountants
Certified Valuation Analyst (CVA)	National Association of Certified Valuators and Analysts
Forensic Certified Public Accountant (FCPA)	Forensic CPA Society
Master Analyst in Financial Forensics (MAFF)	The National Association of Certified Valuators and Analysts

To compare the forensic certifications, data was gathered from each granting organization's website. The characteristics or factors deemed to be relevant to the perceived value of the certifications were then identified. The nine characteristics included for further study are now discussed.

Except for the year founded, the selection of the characteristics included in the study was based upon prior literature. The year founded is included in the analysis as the researchers believe it may be an important characteristic of the perceived value of the certification, given these certifications have stood the test of time and may be better known and, therefore, perceived to be more valuable.

Huber (2013) studied the factors that accountants considered most important relative to forensic certification and certificate granting organizations. Accountants believe it is important that the certification granting organizations be designated as non-profit and that each certification has a strong and enforceable code of ethics (Huber 2014). The qualifications of the officers and directors of certificate granting organizations are also important to forensic accountants pursuing the certifications (Huber 2011).

According to Davis, Farrell and Ogilby (2010), forensic accountants must have earned a bachelor's degree in accounting, which focuses primarily on technical accounting skills. McMullen and Sanchez (2010) surveyed forensic professionals regarding their perceptions of the education requirements needed for forensic engagements and found that nearly 60 percent of the study participants indicated, at a minimum, an undergraduate degree was required. Thus, obtaining a formal education in accounting is fundamental to forensic accountants as it provides strong basic accounting skills (Rezaee, Crumbley, and Elmore 2004).

One of the most dominate certifications promoted by accounting education is the CPA. Ninety-four percent of accounting curriculums focus on meeting CPA requirements and on passing the accompanying exam (Coe and Delany 2008). A CPA license is viewed as the most valuable credential of the professional accountant (Cory and Huttenhoff 2011) and is also an important credential for forensic accountants (Davis et al. 2010). Only licensed CPAs are eligible to apply for forensic accounting positions with the Federal Bureau of Investigation (Durkin 2014).

Passing an examination also was believed important to specific employment decisions relating to forensic accountants (Davis et al. 2010). "Just as a lawyer is defined by a law license, the CPA license is a symbol to the public that an accountant has mastered the vital elements of the profession. A CPA license is a high standard recognized by employers and their clients, governments and the public as an assurance of skill, dedication and quality" (NASBA 2015). Academic research shows that a CPA license is viewed as the most valuable credential of a professional accountant and is an important credential for forensic accountants (Cory and Huttenhoff 2011; Davis et al. 2010).

Grippio and Ibex (2003) found that prior experience in forensic services is the most important skills of forensic accountants. Prior accounting research also suggests that experience is related to the performance of experts. For example, Anderson, Kline Greeno and Neves (1981) found that experienced auditors are better able to handle relevant information and to integrate acquired concepts and procedural knowledge. Bonner and Lewis (1990) found that experts'

decisions are in part a function of experience. According to Dearman and Shields (2001) and Libby (1995), experience impacts knowledge, which in turn may provide better decision capabilities.

Having a code of ethics, the legal status of the organization and the qualifications of the officers and board of directors were viewed as most relevant considerations by participants (Huber 2013). Davis et al. (2010) found that over 60 percent of attorneys ranked being ethical as an essential trait and characteristic of a forensic accountant.

Thus, nine characteristics selected for further study are as follows:

1. Year the granting organization was founded
2. Whether the certificate granting organizations is a non-profit
3. Whether the certification was designed specifically for forensic accountants
4. Whether the certificate granting organization has a board that includes at least one CPA
5. Whether the certification requires applicants to be a licensed CPA
6. Whether applicants must pass an examination before being granted the certification
7. If applicants are required to have achieved a certain level of education
8. If applicants are required to have prior experience
9. If the certificate granting organization has a code of ethics

Table 2 summarizes the certifications included in the study, along with the nine related characteristics (i.e., factors) identified. Notice that not all characteristics could be identified for each of the certifications selected for inclusion in the study.

While most of the certification granting organizations have established and provided ethical guidelines, many of the other criteria are less consistent across certifications and organizations. Most of the certifications require an exam, prior education, and prior experience. However, some certifications do not require any prior education and experience, or the amount of experience and level of education required varies. Many of the certifications do not require applicants to be CPAs, and several of the Boards either do not identify a CPA board member or do not have any CPAs as current members.

Table 2. Certifications with Related Characteristics

Certification	Abbrev.	Year Org Founded	Non-Profit	Forensic only	Granting Organization	Board with a CPA	CPA	Exam	Experience	Education	Code of Ethics
Accredited in Business Valuation	ABV	1887	Y	N	American Institute of Certified Public Accountants (AICPA)	Y	Y	Y	150 hrs.	75hrs CPE	Y
Accredited Senior Appraiser	ASA	1952	Y	N	American Society of Appraisers	N	N	Y	5yrs	15hr course	Y
Certified Business Appraisers	CBA	1978	Y	N	Institute of Business Appraisers		N	Y	0	Bachelors	Y
Certification in Distressed Business Valuation	CDBV	1982	Y	N	Association of Insolvency & Restructuring Advisors	N	N	N	Varies	Bachelors	Y
Certified Forensic Accountant	CRFAC	1993	N	Y	American Board of Forensic Accounting	Y	Y	Y	2yrs	Bachelors	Y
Certified Fraud Examiner	CFE	1988	N	Y	Association of Certified Fraud Examiners	Y	N	Y	2yrs	Bachelors	Y
Certified in Financial Forensics	CFF	1887	Y	Y	American Institute of Certified Public Accountants (AICPA)	Y	Y	Y	1,000 hrs.	75hrs CPE	Y
Certified Financial Planner	CFP	1985	Y	N	Certified Financial Planner Board	Y	N	Y	3 years	Bachelors	Y
Certified Fraud Specialist	CFS	1993	Y	Y	Association of Certified Fraud Specialists, Inc.		N	N	Varies	Varies	N
Certified Internal Auditor	CIA	1941	Y	N	The Institute of Internal Auditors	N	N	Y	4 yrs.	Bachelors	Y
Certified Insolvency & Restructuring Advisor	CIRA	1982	Y	N	Association of Insolvency & Restructuring Advisors	N	N	Y	5 yrs / 4,000 hrs.	Bachelors	Y
Certified Information Systems Auditor	CISA	1967	Y	N	Information Systems Audit and Control Association (ISACA)	Y	N	Y	5yrs	0	Y
Certified Professional Forensic Accountant	CPFAcct		Y	Y	Institute of Certified Forensic Accountants		N	N	3yrs	Online course	Y
Certified Valuation Analyst	CVA	1990	N	N	National Association of Certified Valuators and Analysts	N	N	Y	Varies	Varies	Y
Forensic Certified Public Accountant	FCPA	2005	Y	Y	Forensic CPA Society		Y	N	0	0	Y
Master Analyst in Financial Forensics	MAFF	1990	N	Y	National Association of Certified Valuators and Analysts (NACVA)	N	N	Y	1,000 hrs.	0	Y

### *Experts 'Opinions of Characteristics*

The opinions of experts were elicited to weigh the importance of each of the nine characteristics. The primary focus of the experts' weighing of the characteristics was to garner the perceptions of professionals who currently engage in forensic support services and who hire forensic accountants to assist them with their cases.

Seven licensed attorneys, with experience in forensic support services, serve as the experts (i.e., attorney experts). In each instance, a significant amount of the attorney's practice dealt with forensic support services. The license of each attorney was verified with their respective state bar association, as was the practice area.

All of the attorneys were male. On average, these experts have practiced law for twenty-six years and devoted approximately 40 percent of their practice to forensic accounting support services. In most cases, the attorneys used the services of forensic accountants (i.e., 60 percent of the time). Three of the attorneys earned undergraduate degrees in business, with two of them majoring in accounting. The remaining attorneys earned undergraduate degrees in education. The attorneys who had undergraduate degrees in accounting used forensic accountants to a much lesser extent.

Additionally, the opinions of five accounting academics (i.e., academic experts) were also included in the study based upon inclusion in prior research (Davis et. al 2010). Because academics teach forensic accounting, design forensic accounting curriculum, and counsel students who desire to pursue careers in forensic accounting, their opinions are of value. A comparison of the opinions of the academic experts with those of the attorney experts is believed to be of interest since academic's perceptions of perceived quality may differ from the perceptions of attorneys who are the "consumers" of forensic accounting certifications.

All but one of the academic experts was male. All of the academics teach graduate level, teaching either forensic or auditing courses, at a four-year university. Four of the academics earned doctorate degrees in accounting and three are practicing CPAs. One of the academics is a retired audit partner from one of the Big 4 accounting firms. Additionally, some academics hold the following certifications: Certified Fraud Examiner (CFE), Certified Valuation Analyst (CVA) or Accredited Business Valuation (ABV).

### *Weighing of Characteristics*

Each expert was asked to provide their opinion on the importance of each the nine characteristics by distributing a total of 18 points. The experts were instructed to assign higher point values to more important characteristics and lower point values to less important characteristics. Zero points could be distributed to a factor, if deemed appropriate by the expert.

The experts' opinions were recorded and a combined score was produced for each of the nine characteristics. Table 3 presents the weighing of the nine certification characteristics as determined by the experts. Each group is shown separately. The higher the point value assigned to each characteristic, the more important is its perceived value is to forensic certifications. The characteristics are listed by order of importance.

Table 3. Experts' Opinions of Certification Characteristics

<b>Panel A: Attorneys</b>							
Characteristic	Expert 1	Expert 2	Expert 3	Expert 4	Expert 5	Expert 6	Total
Exam	5	3	3	5	4	1	21
Experience	5	3	4	3	4	1	20
CPA	1	3	1	1	5	5	16
Education	4	2	2	2	1	2	13
Specific to Forensics	0	3	4	0	2	3	12
Code of Ethics	1	2	1	4	1	0	9
Non-Profit	2	1	0	1	0	4	8
BOD with CPAs	0	1	2	2	0	1	6
Year Org Founded	0	0	1	0	1	1	3

<b>Panel B: Academics</b>						
Characteristic	Expert 1	Expert 2	Expert 3	Expert 4	Expert 5	Total
Exam	5	3	5	2	3	18
Experience	3	3	2	6	3	17
Education	4	3	3	2	3	15
CPA	2	3	0	6	3	14
Specific to Forensics	2	2	0	2	4	10
Code of Ethics	1	0	1	0	2	4
BOD with CPAs	1	2	1	0	0	4
Non-Profit	0	1	3	0	0	4
Year Org Founded	0	1	3	0	0	4

As shown on Table 3 both the attorney experts and the accounting experts identified the same five characteristics as the most important to the perceived value of a forensic certification. The attorney experts' highest ranked characteristic was whether the forensic certification requires passing an examination; the experience requirement ranked second, followed by the education requirement, the CPA prerequisite and whether the certification was designed specifically for forensic accountants. While the academic experts identified the same top five characteristics, a slight difference in ranking is noted, with education as third and CPA prerequisite as fourth.

The attorney experts identified the fifth characteristic deemed to be of most importance to the perceived value of the certifications as whether the organization has a code of ethics, followed by whether the board of directors has at least one CPA, whether the organization is a non-profit, and the year the certificate granting organization was founded. Interestingly, while the academic experts perceived these same characteristics to be of least importance, there is no variation in the combined point value assigned to these factors.

### ***Ranking of Forensic Certifications***

To provide a ranking of the perceived value of the forensic certifications, the experts' combined score for each characteristic was applied to the characteristics found in each of the 16 forensic certifications. To facilitate the ranking process, each characteristic was identified as either a discrete or a continuous variable. All variables were determined to be discrete with the exceptions of three of the criterion: the year the certification granting organization was founded, the experience requirement and the education requirement.

In assigning points to the continuous the variables, a quartile system was used for the year the certification granting organization was founded and experience requirements. Then the total points assigned to these criteria were multiplied by .25, .50, .75, or 1, depending on which quartile they fell.

The experience requirement was based upon years of experience. However, if no experience was required, zero points were given. For those certifications that only gave experience requirements in terms of years, the years were converted into hours. This conversion assigned 800 hours to a year based upon the Certified Insolvency & Restructuring Advisor (CIRA) certification, which explicitly required five years or 4,000 hours.

A factor was developed to assign points to the education requirement, which was based on hours. A bachelor's degree equated to 120 hours. Additional required education hours were then added, if appropriate, to compute the maximum education hours required for all certifications. This maximum also served as the basis for a percentage allocation used to rank the experts combined score for education. Several the certifications did not have specific education requirements so the allocation percentage was not applicable.

The final step in the ranking process was to mathematically assign points to each certification based upon the combined score for each characteristic using the process described herein. A comparison of the final ranking of the perceived value of each certification is found on Table 4. The higher the total point value, the higher the perceived value of the forensic certification.

Table 4. Ranking of Forensic Certifications

<b>Panel A: Attorneys</b>			
Rank	Total Points	Certification	
1	93	CFF	Certified in Financial Forensics
2	85	CRFAC	Certified Forensic Accountant
3	81	ABV	Accredited in Business Valuation
4	70	CFP	Certified Financial Planner
5	69	CFE	Certified Fraud Examiner
6	69	CIRA	Certified Insolvency & Restructuring Advisor
7	66	CISA	Certified Information Systems Auditor
8	66	CIA	Certified Internal Auditor
9	64	ASA	Accredited Senior Appraiser
10	58	MAFF	Master Analyst in Financial Forensics
11	57	CPFAcct	Certified Professional Forensic Accountant
12	50	CBA	Certified Business Appraisers
13	41	CVA	Certified Valuation Analyst
14	30	FCPA	Forensic Certified Public Accountant
15	28	CDBV	Certified in Distressed Business Valuation
16	21	CFS	Certified Fraud Specialist

Table 4. Ranking of Forensic Certifications, continued

<b>Panel B: Academics</b>			
Rank	Total Points	Certification	
1	77	CFF	Certified in Financial Forensics
2	71	CRFAC	Certified Forensic Accountant
3	67	ABV	Accredited in Business Valuation
4	58	CFE	Certified Fraud Examiner
5	56	CIRA	Certified Insolvency & Restructuring Advisor
6	56	CFP	Certified Financial Planner
7	54	CIA	Certified Internal Auditor
8	50	CISA	Certified Information Systems Auditor
9	50	ASA	Accredited Senior Appraiser
10	49	MAFF	Master Analyst in Financial Forensics
11	46	CPFAcct	Certified Professional Forensic Accountant
12	40	CBA	Certified Business Appraisers
13	34	CVA	Certified Valuation Analyst
14	21	CDBV	Certified in Distressed Business Valuation
15	19	FCPA	Forensic Certified Public Accountant
16	15	CFS	Certified Fraud Specialist

Results show that three certifications perceived to be of most value to accountants for forensic support services: Certified in Financial Forensics (CFF), Certified Forensic Accountant (CRFAC), and Accredited in Business Valuation (ABV). All three of these certifications require a CPA license, which is a characteristic ranked high by both attorneys and academics.

### Discussion

While the rising demand for forensic accountants has resulted in a proliferation of forensic certifications for professional accountants, minimal research to date has attempted to evaluate the perceived quality of forensic certifications. The aim of this research is to evaluate the perceived value of forensic accounting certifications. Having a forensic credential may be viewed as a relevant and distinguishing factor to practicing forensic accountants.

The study results ranked the certifications using the opinions of two groups of experts: attorneys and academics. A significant amount of the attorney experts' practices dealt with forensic support services and the academic experts teach and/or are engaged in forensic accounting. Results show three certifications perceived to be of most value to accountants for forensic support services by both the attorney and academic experts: Certified in Financial Forensics (CFF), Certified Forensic Accountant (CRFAC), and Accredited in Business Valuation (ABV).

The results are interesting, particularly since the Certified Fraud Examiner (CFE) is listed as one of the most marketable credentials available by Robert Half (2015). Attorney experts ranked the CFE fifth as to perceived value, while the academic experts ranked the CFE fourth.

Additionally, the AICPA sponsors both the ABV and the CFF certifications, and they require applicants to meet education and experience requirements as well as be licensed as a CPA. Holders of the CFE must meet similar requirements, but they are not required to be licensed CPAs.

The attorney experts ranked having a CPA license higher than did the academic experts. This difference may be related to the fact that CPAs appear to be preferred by attorneys as expert witnesses. Apparently, attorneys view a CPA designation as a very important credential. Education was also very important to both groups which are implicit to having a CPA designation. Surprisingly, having neither a code of ethics nor a certification with specificity in forensics appeared to significantly impact the final rankings of the certifications. This result may reflect the fact that CPAs are guided by the AICPA Code of Ethics.

The findings are also interesting since the researchers contacted several companies which hire forensic accountants. In most instances, both law and accounting firms identified the CFE certificate as a very valuable forensic certification. In other situations, no preference was identified as to a particular forensic certification.

The ranking of the perceived value of the Certified Information Systems Auditor (CISA) is also of interest. This ranking makes sense, as technology and the use of data analytics is of great importance to understanding information of firms. This finding suggests that greater focus be placed on information technology and its related use in training forensic accountants, such as in data analytics and related software applications.

This research makes several contributions to the accounting literature. According to DiGabrielle and Dennis (2015), there is a need for more research in forensic accounting which is useful to the further advancement and understanding of the field. First, the study extends prior research on the perceived value of forensic accounting certifications. Second, the study directly contributes to the research in forensic accounting, by investigating the characteristics, or factors, which may influence the perceived value of forensic certifications. Finally, the research is also of value to both accounting practitioners and attorneys, since the results provide empirical evidence regarding the perceived value of forensic certification, which has possible implications to the training, marketing, and hiring of professional accountants for forensic support services. Academics also may find the research findings helpful in counseling students regarding the value of certifications for a career in forensic accounting. To date minimal research has explored these topics empirically.

There are several limitations to the study. While a wide selection of forensic certifications was included in this research, there are many more certifications not studied. Requirements of the certifications are not static; thus, the ranking of the perceived value of a certification may change in the future. Only nine characteristics, or factors, were considered in the study and it is possible that an important characteristic was excluded. A small number of experts weighed the certification characteristics. A larger number of experts may provide different results. Given the evolving nature of forensic accounting, it is possible that requirements of current forensic certifications will change. Current certifications may be discontinued or new certifications may become available.

The study provides several outlets for future research. Future researchers could identify criteria forensic accountants or companies using forensic accountants find most relevant. The study could be extended to investigate if different perceived values will be placed on the selected criteria and/or certifications given a larger sample, including potential employers, academics, lawyers, and practicing forensic accountants. In addition, some criteria could be expanded. For example, we collect and examine the year the granting organization was formed, but perhaps the year the certification was formed would be of interest. The AICPA, which offers the CFF and ABV certifications, is the oldest organization, but the CFE is the oldest certification in the study. Finally, it could be interesting to see whether employers already have their own informal rankings of forensic certifications, and thus are more likely to hire or provide higher pay to accountants holding certain certifications.

In conclusion, the results of the study provide empirical evidence as to perceived value of some of the more widely held forensic accounting certifications. The increasing demand for qualified forensic accountants requires a means of demonstrating expertise in the field and obtaining a forensic certification is one way of doing so. A ranking system for the certifications is beneficial both for forensic accountants considering the various certifications, as well as employers looking for a way to differentiate forensic accountants.

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## Appendix A. Listing of Certifications in Alphabetical Order

### *Accredited in Business Valuation (ABV)*

Offered by the AICPA, the ABV certification is aimed to assist CPAs better position themselves as business valuation service providers. Passage of an exam is required. Testing includes three major areas: qualitative and quantitative analysis, valuation analysis, and related topics, such as regulatory standards. Candidates must also complete of a minimum of either six business valuation engagements, or 150 hours of business valuation experience, within the 5 year period preceding the date of application and complete 75 hours of valuation-related continuing professional education, within the five preceding years.

### *Accredited Senior Appraiser (ASA)*

Offered by the American Society of Appraisers, ASA applicants must complete an application, which includes letters of reference and a resume. Passage of both an ethics exam and a fifteen hour National Uniform Standards of Professional Appraisal Practice (USAP) course is also required, followed by submission proof of education, five or more years of full-time appraisal experience, appraisal report(s) and current USPAP certificate.

### *Certified Business Appraisers (CBA)*

The Institute of Business Appraisers (IBA) offers the CBA. Applicants must meet seven requirements including: membership in IBA/ADAM, a bachelors' degree, completion of training at the Business Valuation and Certification Training Center, passing a five hour written exam, completion of the Comprehensive Certified Business Appraiser Workshop, and submission of demonstration reports.

### *Certification in Distressed Business Valuation (CDBV)*

The CDBV certification is offered by the Association of Insolvency & Restructuring Advisors (AIRA), since 2004. Applicants must complete a three part course of study and pass examinations on each part. Exam topics include the bankruptcy code and how it impacts valuation of distressed businesses; advanced business valuation; and application of business valuation concepts to bankruptcy and other distressed situations. Applicants must also be a member of AIRA, earned a bachelor's degree, complete the program application, demonstrate significant valuation experience, pledge to uphold the code of ethics and professional conduct, and provide three letters of reference.

*Certified Forensic Accountant (CRFAC)*

Globally recognized, the CRFAC is offered by the American Board of Forensic Accounting. This program assesses CPAs' knowledge and competence within the field of forensic accounting. The certification is aimed at enhancing a strong professional reputation by demonstrating a high level of commitment to the field. Certification covers the history of forensic accounting, fraud auditing, asset misappropriation scams, alternate dispute resolution, preparation and courtroom tips, document retrieval and analysis, federal rules of evidence, government auditing techniques, and Internal Revenue Service (IRS) valuation guidelines. Applicants must meet eligibility requirements and pass an exam. CRFAC candidates must have at least two years of proven experience in accounting, auditing, criminology, fraud investigation, loss prevention, or law; complete the CRFAC Program; take and pass the assessment process and examination; agree to abide by the ABFA Code of Ethics; and adhere to the maintenance of certification requirements.

*Certified Fraud Examiner (CFE)*

Sponsored by the world's largest anti-fraud organization, the CFE is offered by the Association of Certified Fraud Examiners (ACFE). Applicants must pass a test covering four major areas: fraud prevention and deterrence, financial transactions and fraud schemes, investigation, and law. In addition to passing the exam, applicants are required to be members of the ACFE and to submit proof of education and three letters of recommendations.

*Certified in Financial Forensics (CFF)*

Offered by the AICPA to qualified CPAs, the CFF aims to enhance the practitioner's image as a competent, trustworthy financial forensic expert. Applicants must pass an exam which covers professional responsibilities and practice management; fundamental forensic knowledge; and specialized forensic knowledge. Applicants must also have 1,000 hours of business experience in forensic accounting and 75 hours of forensic accounting related continuing education, within the five preceding years.

*Certified Financial Planner (CFP)*

The CFP is offered by the CFP Board. Applicants must have a college education, three years of professional experience in the financial planning process, adhere to a standard of ethics and conduct prescribed by the CFP Board. They must also pass an exam which covers eight domains of financial planning.

### *Certified Fraud Specialist (CFS)*

The CFS is offered by the Association of Certified Fraud Specialists, Inc., a non-profit organization founded in the early 1990s. Certification requirements are based upon a points system, rather than hard and fast rules. For example, points are awarded based upon college degrees earned, certifications achieved and years of experience in the field. Passage of an exam is not required.

### *Certified Internal Auditor (CIA)*

A globally accepted certification in the field of internal auditing, the CIA certification is offered by the Institute of Internal Auditors (IIA). In order to obtain this certification, applicants must hold a four-year post-secondary degree; have 24 months of internal auditing experience; provide a character reference; and agree to abide by the IIA's code of ethics. Applicants must also pass a comprehensive three-part exam which covers internal audit basics, internal audit practice, and internal audit knowledge elements.

### *Certified Insolvency & Restructuring Advisor (CIRA)*

The CIRA certification is offered by the Association of Insolvency & Restructuring Advisors (AIRA) since 1992. The certification aims to provide individuals with the knowledge and skills required to assist clients in situations involving distressed and/or insolvent entities. Prerequisites require applicants be a regular or government/academic member of AIRA in good standing; have a bachelor's degree from an accredited college or university; and complete a three part course of study and exam, which focuses on insolvency topics and the code of professional and ethical conduct. Five years of accounting or financial experience and 4,000 hours or specialized experience is also required, as are 3 letters of recommendation.

### *Certified Information Systems Auditor (CISA)*

The CISA certification is offered by ISACA, an independent, nonprofit, global association incorporated in 1969. Applicants must pass a five part exam which covers auditing information systems (IS), governance and management of information technology (IT), IS acquisition, development and implementation, IS operations, maintenance and support, and protection of information assets. Additional requirements include a minimum of five years of professional IS auditing, control or security work experience; adherence to a code of professional ethics, continuing professional education, and meeting IS auditing standards.

### *Certified Professional Forensic Accountant (CPFAcct)*

The CPFAcct is offered by the Institute of Certified Forensic Accountants (ICFA). The CPFAcct requires applicants to complete a course of study in forensic accounting; have a

minimum of 3 years of work experience; and be approved by the ICFA's Board. No previous accounting experience is required as the course of study is designed to provide all applicants with the knowledge, skills, and insight needed to identify, detect, and prevent fraud.

#### *Certified Valuation Analyst (CVA)*

The CVA certification is offered by the National Association of Certified Valuators and Analysts (NACVA). Applicants must be CPAs, although experience and substantial knowledge may replace this requirement in some instances. Applicants must also be practitioner members with NACVA; demonstrate that they meet NACVA's experience threshold by either completing a sample case study or by submitting an actual fair market value (FMV) report prepared in the last 12 months; attend an optional five-day training program; submit both personal and three business references; and pass a comprehensive, five-hour exam.

#### *Forensic Certified Public Accountant (FCPA)*

The FCPA is offered by the Forensic Certified Public Accounting Society (FCPAS). Founded in 2005, the society's goal is to promote excellence in the forensic accounting profession. FCPA certification is offered to CPAs who pass a five-part course and exam which focuses on corporate fraud, principles of fraud examination, criminal interrogation and confessions, financial investigation and forensic accounting and forensic and investigative accounting. If applicant is also a CFF, the FCPA certification is granted without taking the examination.

#### *Master Analyst in Financial Forensics (MAFF)*

The MAFF is offered by the National Association of Certified Valuators and Analysts (NACVA). Applicants may apply in any of the following specialty areas: commercial damages and lost profits, matrimonial litigation, bankruptcy, insolvency, and restructuring, business valuation in litigation, business and intellectual property damages, forensic accounting, and fraud risk management. Prerequisites include holding another accounting certification, providing proof of a specified amount of experience, passing a four hour examination, being a practitioner member of NACVA and submitting letters of reference.