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Does an Accounting Internship Impact CPA Exam Performance?

Xiaochuan Zheng

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JOURNAL OF THE ACADEMY OF BUSINESS EDUCATION

VOLUME 23

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JANITA RAWLS, Editor
Georgia Gwinnett College

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Does an Accounting Internship Impact CPA Exam Performance?

Dennis Bline and Xiaochuan Zheng*

Bryant University

We examined whether an accounting internship influences CPA exam performance. Using 2005–2013 candidate data, we found that an internship is significantly related to CPA exam performance in the Auditing (AUD) section. We speculate that the internship's observed positive effect for the AUD section and the lack of effect for the other three sections is because the audit section more closely reflects knowledge/skills acquired by interns than the other three exam sections. These results have implications for academics and candidates seeking to improve CPA exam performance. Our study also provides information for those considering incorporating an accounting internship into the curriculum.

Keywords: Accounting Internship, CPA Exam, Performance

Disciplines of Interest: Accounting

INTRODUCTION

Internships have grown in importance and have become a primary means for employers of accounting graduates to recruit prospective new associates. In fact, most new associates at the Big 4 accounting firms previously had internships with the firm [Bloomberg Business 2007]. Although many professions use internships as a recruiting device, the accounting profession has been found to have the highest percentage of hires from former interns [Koba, 2014]. Internships in the accounting profession will likely continue to be very important as the firms continue to expand their global operations and associated recruiting goals.

Although few would contend that internships do not have value for the student and for the organization offering the internship, there is limited research examining whether an accounting internship has any impact on the career success

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of the intern after he or she joins the accounting firm. One short-term measure of career success is the timely completion of the CPA exam. In many accounting organizations, failure to pass the CPA exam in a timely manner will likely lead to the associate leaving the organization. The purpose of the current study was to investigate the relationship between having an academic accounting internship and performance on the CPA exam. Results indicate that having an internship is positively related to performance on the audit section of the CPA exam.

We believe that this study provides an important contribution to the existing academic literature on the accounting internship. We note that this is the first study to use multivariate statistics to examine the relationship between an accounting internship and CPA exam performance. Although some prior studies have looked at how an accounting internship could affect academic motivation and performance [Knechel and Snowball, 1987; Martin and Wilkerson, 2006], only one prior study has examined how an accounting internship might impact CPA performance [Hairston, Harter, and McKay, 2020]. Investigating this issue is important, because performance on the CPA exam is critical to the career success of an accounting graduate.

In addition, we contribute to the existing academic literature on the determinants of CPA exam success. Prior studies have extensively examined factors that might affect a candidate's CPA exam performance. Those factors examined in prior literature include student aptitude, as measured by SAT or ACT scores [Grant, Ciccotello, and Dickie, 2002]; implementation of the 150 credit hour requirement [Allen and Woodland, 2006]; faculty research specialty and productivity [Boone, Legoria, Seifert, and Stammerjohan, 2006, Blin, Perreault, and Zheng, 2016]. However, the role of an accounting internship on candidate CPA exam performance has received minimal attention in the literature [Hairston et al., 2020]. Given the popularity of an accounting internship with accounting students, it is worthwhile to expand the examination of an accounting internship on CPA exam performance.

The remainder of this paper is organized as follows: The next section provides a brief review of background literature into research on academic accounting internships. The subsequent sections present the research methods and results. Finally, the paper ends with discussion and implications of the study.

BACKGROUND AND LITERATURE REVIEW

Although internships are important in the profession's recruiting process, relatively little is known about their impact on students who have the internships. The limited research that exists has been in three areas: One area that has been investigated pertains to the time between the completion of the academic accounting internship and the end of the student's academic career.

Researchers have found that students return from the internships with greater academic motivation and performance [Martin and Wilkerson, 2006] and enhanced future academic performance [Knechel and Snowball, 1987]. In particular, Knechel and Snowball [1987] found that students who had completed an accounting internship performed better in a subsequent auditing course than students who had not had an accounting internship. The researchers proposed that knowledge gained from the internship could have resulted in the observed difference.

A second area of inquiry investigates whether the internship impacts the student's intention to have a long-term career in public accounting. Hart, Kremin, and Pasewark [2017] investigated whether an internship altered the length of time students anticipated working in public accounting. They found that some aspects of the internship (workload) decreased organizational commitment, whereas the type of work and interactions with coworkers increased organizational commitment. However, the internship experience resulted in a shorter than expected career in public accounting.

A third area that researchers have investigated is the entry of new associates into the accounting profession. In particular, these researchers investigated the interviewing success of students who completed an accounting internship [Pasewark, Strawser, and Wilkerson, 1989] as well as future job opportunities in public accounting for students who completed an accounting internship [Rigsby, Addy, Herring, and Polledo, 2013]. Pasewark et al. [1989] found that students who had internships are more likely to get an office visit based on an on-campus interview than their counterparts who had not had an internship.

The limited prior research on an accounting internship has focused on the time period from when the internship occurs until the time when the student enters the accounting profession. None of these inquiries looked at success after joining the firm. The accounting firms all have academic performance requirements to be considered for joining the firm. And, like all organizations, they have expectations that must be met to remain a member of the firm.

One of the early requirements to remain in the firm, for those who are in the audit area, is the successful completion of the CPA exam (associates in the tax and advisory services areas may use other recognized certifications as demonstration of technical competence). The CPA exam has been the benchmark for professional competence of those who serve as public accounting auditors for many years. Failure to pass the CPA exam has always limited the promotion possibilities for audit professionals because the auditor who signs the audit opinion must be a CPA. The Big 4 firms formalized the importance of passing the CPA exam when they instituted the requirement to complete the CPA exam before advancement can be considered. In addition, some firms have time stipulations for the completion of the exam. Although evidence exists that internships can improve academic performance after the internship [Knechel and Snowball, 1987], there is little evidence that the internship can also result in enhanced performance on the CPA exam.

One study has investigated the impact of an internship on CPA exam performance [Hairston et al., 2020]. These authors find that an accounting internship results in an increase in CPA exam scores (statistically significant for BEC) and pass rate (statistically significant for REG). However, the authors do not indicate that any control variables were considered when conducting these tests, so it is presumed that multivariate analysis was not applied. They then go on to evaluate performance based on a number of demographic categories. Although this study is important, it is possible that the results could result from not considering all of the independent variables together.

The Big 4 accounting firms and the AICPA/National Association of State Boards of Accountancy (NASBA) have made statements that would lead one to believe that an academic accounting internship should result in a better performance on the CPA exam. Representatives from the Big 4 firms have publicly stated that accounting interns are generally treated like first-year associates. In addition, interns work with first-year associates and are given the same types of tasks to complete that first-year associates are given. Representatives from the AICPA and the NASBA have each made public statements that the CPA exam should be built around the skills and abilities that entry-level professionals need early in their career. If the Big 4 internships are meeting their objectives and if the CPA exam is testing entry-level skill requirements, then an accounting internship should help CPA candidates be better prepared for the exam. As a result, we test the following hypothesis:

Hypothesis: *Ceteris paribus*, students who complete an academic accounting internship will have a higher score on each individual section of the CPA examination than students who do not complete an internship.

METHODS

Data for this study come from two sources. One source is CPA exam data from the NASBA. The data comprised exam scores for every section of the CPA exam taken by all candidates from 2005 to 2013. In addition, demographic information about the candidates, such as birth date, gender, date the exam section was taken, and university where the degree was granted, was included in the data set.

The second source of data came from a mid-size private university in the northeastern United States. This university is a residential campus, and more than 100 students complete the accounting degree each year. The College of Business is AACSB-accredited, and a majority of the accounting students begin their career in a Big 4 firm.

The registrar's office provided information on accounting students who graduated between 2005 and 2013. The file included information

indicating whether the student completed an academic accounting internship. The data set also included student birth date, gender, degree year, GPA, and SAT score submitted at the time of application to the university.

We reduced the NASBA data set to candidates who were from that particular university. We next matched the candidates on birth date, gender, and degree year, so we were able to identify candidates who both graduated and sat for an individual section of the CPA exam for the first time during the period 2005–2013.¹ The final sample contains a total of 1,543 first-time examination sittings.

The definition of each variable in the study is provided in Table 1, whereas Table 2 reports descriptive statistics. With regard to descriptive statistics, the average score (SCORE) on the AUD section (75.3) is above the passing score of 75, whereas the average score on the other three sections are below the passing score. However, the percentage of candidates who passed the CPA exam section (PASS) is above 50 percent for all four sections. In fact, the PASS rate is over 63 percent for the BEC section. Another demographic statistic important in the current study is whether the candidate has had an internship. More than half (54 to 56 percent) of the candidates had an academic accounting internship (INTERN) on his or her transcript. This university requires an undergraduate grade point average (GPA) of 3.0 before a student can take an internship for academic credit. In addition, internships are reviewed for content before being approved, and students are required to meet with faculty supervisors on a regular basis and complete an academic component of the internship.

Other demographic variables in the data set are the length of time between graduation and taking the CPA exam (YEARGAP), SAT score, overall undergraduate GPA, gender, graduate degree, and test-taking windows. On average, candidates attempted the CPA exam section for the first time between 15 and 18 months after obtaining the undergraduate degree. This interval may seem like a long time, but candidates may be in graduate school, and they will take the exam one section at a time. The average SAT and GPA of the sample were approximately 1142 and 3.36 on a 4.0 scale. In addition, approximately 45 percent of the candidates were female. With regard to the test-taking window, the most popular window was the fourth quarter window (October–November).

The analysis was conducted with both OLS regression as well as logistic regression. We chose to conduct the analysis with both because the mean and median of SCORE are slightly different, indicating that there could be minor data skewness issues in the sample. In the analysis, we regressed SCORE (PASS) on INTERN separately for each of the four sections of the CPA exam (AUD, FAR, REG, and BEC). In addition, we included a number of other items as control variables either because they have been found to be associated with SCORE in prior studies or are believed to possibly influence the relationship of interest. The data were analyzed using the following model:

Table 1. Operational Definitions of Variables

Variable	Operational Definition
SCORE	The candidate score (ranging from 0–100) on the respective section of the CPA exam.
PASS	A dummy variable that is coded as 1 when the candidate passed the exam and as zero otherwise.
INTERN	A dummy variable that is coded as 1 when the candidate took an accounting internship course and as zero otherwise.
YEARGAP	Number of years passed since graduation when he or she took the exam.
SAT	The candidate's combined SAT (verbal and math).
GPA	The candidate's overall GPA.
GENDER	An indicator variable, coded as 1 if the candidate is female.
GRADUATE	An indicator variable, coded as 1 if the candidate had a graduate degree and as zero otherwise.
Q1–Q4	Q1, Q2, Q3, and Q4 are indicator variables that are coded as 1 if the candidate took the exam in Q1/Q2/Q3/Q4, and as zero otherwise.

$$\begin{aligned} \text{SCORE(PASS)} = & \beta_1 \text{INTERN} + \beta_2 \text{YEARGAP} + \beta_3 \text{INTERN} \times \text{YEARGAP} \\ & + \beta_4 \text{SAT} + \beta_5 \text{GPA} + \beta_6 \text{GENDER} + \beta_7 \text{GRADUATE} \\ & + \beta_8 \text{Q2} + \beta_9 \text{Q3} + \beta_{10} \text{Q4}. \end{aligned}$$

We predict that the sign of INTERN, SAT, and GPA will all be positive. SAT, GPA, and GRADUATE have been included as control variables in prior studies, and the expected sign in the current study is consistent with prior findings [Rau et al., 2019; Nagle et al., 2018; Bline et al., 2016]. As stated previously, the NASBA and AICPA representatives have stated in public forums that the CPA exam is designed to represent the knowledge base expected of first-year professionals. In addition, accounting firm representatives have stated in public forums that internships are designed to give interns the same experiences they will have as entry-level associates. If the AICPA and the firms are successful at meeting these objectives, then the completion of an accounting internship should provide candidates with understanding that will be helpful in being successful on the CPA exam. As a result, those who complete an accounting internship should be better prepared for the CPA exam than candidates who have not completed an accounting internship. Thus, we expect the INTERN variable to have a positive sign.

We do not predict a sign for YEARGAP, GENDER, and Q2–Q4. The findings with regard to GENDER have been inconsistent in prior studies, and there

Table 2. Descriptive Statistics by Section

Variable	AUD			FAR			REG			BEC		
	Mean	Std Dev	Median	Mean	Std Dev	Median	Mean	Std Dev	Median	Mean	Std Dev	Median
SCORE	75.337	13.479	76.000	72.774	14.726	76.000	73.619	14.200	76.000	74.750	10.870	77.000
PASS	0.548	0.498	1.000	0.535	0.499	1.000	0.549	0.498	1.000	0.635	0.482	1.000
INTERN	0.553	0.498	1.000	0.543	0.499	1.000	0.555	0.498	1.000	0.557	0.497	1.000
YEAR GAP	1.474	1.324	1.000	1.433	1.319	1.000	1.587	1.415	1.000	1.352	1.219	1.000
SAT	1,140.993	101.780	1,130.000	1,141.522	102.345	1,140.000	1,144.773	102.297	1,140.000	1,143.047	103.108	1,140.000
GPA	3.358	0.339	3.380	3.380	0.334	3.400	3.364	0.347	3.400	3.357	0.350	3.390
GENDER	0.459	0.499	0.000	0.480	0.500	0.000	0.443	0.497	0.000	0.464	0.499	0.000
GRADUATE	0.067	0.250	0.000	0.079	0.270	0.000	0.072	0.259	0.000	0.057	0.233	0.000
Q1	0.228	0.420	0.000	0.207	0.406	0.000	0.192	0.394	0.000	0.143	0.351	0.000
Q2	0.199	0.399	0.000	0.147	0.355	0.000	0.205	0.404	0.000	0.203	0.403	0.000
Q3	0.273	0.446	0.000	0.297	0.457	0.000	0.256	0.437	0.000	0.302	0.460	0.000
Q4	0.300	0.459	0.000	0.349	0.477	0.000	0.347	0.477	0.000	0.352	0.478	0.000
N	403			381			375			384		

Note. See Table 1 for variable definitions.

is no specific reason to expect candidates to score higher or lower in any particular quarter of the year. There are competing possibilities that prevent prediction of a sign for YEARGAP. First, stronger students may be more likely to take the CPA exam soon after obtaining the undergraduate degree. This possibility would imply that the sign for this variable would be negative. On the other hand, if the CPA exam is designed to represent what entry-level professionals need to understand, then more work experience should result in greater comprehension and a higher score on the CPA exam. In addition, candidates may take a CPA review course prior to sitting for the exam, and YEARGAP may also be measuring whether the candidate took a formal review course. These two reasons would imply that the coefficient for YEARGAP should be positive. As a result, we cannot make a prediction about the sign of this variable's coefficient.

We expect the interaction between INTERN and YEARGAP to have a negative coefficient for at least some of the CPA exam sections. We believe that the knowledge gained from the internship will initially increase CPA exam performance relative to those who had not had an internship. However, over time the new associates who had not completed an internship will also acquire the same information on the job. This combination of events would lead to a negative coefficient for the interaction term.

RESULTS

The results of the OLS regression analysis are presented in Table 3. The independent variable INTERN is significant ($\beta = 3.4151$, $p\text{-value} = 0.0345$) in one of the four models (AUD), and it was insignificant in the other three models (FAR, REG, and BEC). This finding may be due to the audit portion of the CPA exam more closely reflecting audit skills needed by new associates than the other three sections of the exam. In general, the AUD section of the CPA exam addresses basic auditing and attestation concepts. A student who has a tax internship would likely work in either individual tax or corporate tax, and the CPA exam will address both individual and corporate tax issues. In addition, one might believe that the REG section of the exam would be closely related to the tax practice of the accounting firm, but the REG section of the exam also includes business law, so the relationship with the firm's practice is likely not as close as that of the audit section. The FAR section addresses a wide range of financial accounting topics, many of which are likely beyond the level that would be seen by students as part of an academic accounting internship. Finally, the BEC portion of the CPA exam is broader in nature and entails areas than entry-level professionals and interns would likely encounter.

The interaction term $\text{INTERN} \times \text{YEARGAP}$ is negative and significant ($\beta = -2.0383$, $p\text{-value} = 0.0132$) for the AUD section only. This finding

Table 3. Regression Results
Dependent Variable: SCORE by Section

		AUD		FAR		REG		BEC	
Variable	Pred. Signs	Parameter Estimate	p-Value	Parameter Estimate	p-Value	Parameter Estimate	p-Value	Parameter Estimate	p-Value
INTERN	+	3.4151	0.0345	-0.5619	0.3847	0.0585	0.4891	0.4378	0.3723
INTERN \times YEARGAP	-	-2.0383	0.0132	0.7111	0.2327	0.2188	0.4131	-0.0430	0.4764
YEARGAP	?	2.4355	0.0003	0.3699	0.5846	0.9785	0.1830	0.6571	0.2369
SAT	+	0.0213	0.0005	0.0247	0.0002	0.0071	0.1707	0.0244	<.0001
GPA	+	15.2369	<.0001	20.7910	<.0001	15.3000	<.0001	13.5325	<.0001
GENDER	?	-3.0447	0.0138	-6.8183	<.0001	-5.5071	0.0002	-5.4714	<.0001
GRADUATE	+	1.4530	0.2804	1.9644	0.2126	0.5068	0.4281	-0.1012	0.4796
Q2	?	5.0764	0.0062	6.8592	0.0014	-0.6031	0.7847	0.2977	0.8462
Q3	?	4.4598	0.0098	7.4869	<.0001	0.1274	0.9523	2.9294	0.0381
Q4	?	2.3255	0.1824	4.6032	0.0106	0.2506	0.9028	1.9729	0.1702
Year fixed effect		Controlled		Controlled		Controlled		Controlled	
N		403		381		375		384	
Adj R ² -		0.2262		0.3431		0.1268		0.3923	

Note. See Table 1 for variable definitions. *p*-Values are based on one-tailed (two-tailed) tests for variables whose relation to the dependent variables is (is not) predicted.

offers evidence that any advantage gained by interns as a result of exposure to the audit environment diminishes over time because those who did not have an accounting internship gained comparable experience on the job.

Taken together, the size of the coefficients of INTERN and INTERN \times YEARGAP suggests that an accounting internship results in a performance increase of approximate 1.38 points on the AUD section of the exam for students who took this section within one year of graduation.

YEARGAP was found to be positive and significant for AUD ($\beta = 2.4355$, $p = 0.0003$). There may be multiple reasons for this observation. For example, it is possible that the longer the candidate is on the job, the more exam-related skills he or she is developing, resulting in a higher score. It is also possible that the candidate started taking a CPA review course after starting his or her professional career. Either of these could result in the positive YEARGAP coefficient.

The control variables SAT and GPA are significant as expected for all four sections of the CPA exam. All coefficients are highly significant except SAT for the REG section. GENDER is negative and significant for all four sections, showing that females scored lower on each section of the CPA exam than did their male counterparts. The control variable GRADUATE is insignificant for all four sections of the CPA exam.

The logistic regression results are presented in Table 4. The logistic results generally confirm the OLS regression results, indicating that any data skewness issues that may exist in the SCORE variable do not overly influence the analysis. The few differences noted between the OLS and logistic regression results pertain to the GRADUATE and SAT variables. For the GRADUATE variable, in the FAR analysis, the OLS analysis resulted in a p -value of 0.2126, and the logistic regression resulted in a p -value of 0.0410. For the SAT variable, in the REG analysis the OLS analysis resulted in a p -value of 0.1707, and the logistic regression resulted in a p -value of 0.0248. In addition, there were several differences with regard to the control variables for the exam window.

CONCLUSIONS AND IMPLICATIONS

Internships have become a valued recruiting device for many accounting firms and corporations. The student and the organization have an extended period of time to learn more about each other to determine whether the prospective new associate is a good fit for the organization. Although there are likely numerous reasons for the student and the organization to desire completion of the internship, the results of this study indicate that performance on the CPA exam should not be one of those reasons.

We find that, in general, the completion of an academic accounting internship is significantly related to CPA exam performance only in the AUD section. For students who took the AUD section within one year of the graduation, an accounting internship results in a performance increase of approximately 1.38 points on this section of the exam.

The results provide strong support for the relationship between GPA and the CPA exam section score. Every model has a highly significant coefficient for GPA, demonstrating that higher performance in the classroom yields results, not just in the course but also for comprehensive exams when the program is completed.

This study is subject to a number of limitations. First, the data for the study were taken from one university. It is generally difficult to obtain information from the university's records office. We were able to do so because we did not need any student names or identification numbers. Future researchers may want to replicate this study in another setting. The results obtained were for a medium-size, AACSB-accredited, private university. There is no reason to suspect that findings in another setting will be different, but there is no proof that the results are not sample-specific.

Another limitation is that candidates were matched to exam scores based on birth date, gender, and degree year. To the extent there could be errors in these data, we could have some misclassifications.

A third limitation is that there are missing control variables. We did not know the semester in which the internship was taken. Hairston et al. [2020]

Table 4. Robustness Check: Logistic Regression Results
Dependent Variable: PASS by Section

		AUD		FAR		REG		BEC	
Variable	Pred. Signs	Parameter Estimate	p-Value	Parameter Estimate	p-Value	Parameter Estimate	p-Value	Parameter Estimate	p-Value
INTERN	+	0.6368	0.0369	-0.0012	0.4987	-0.1698	0.3176	-0.1539	0.3435
INTERN \times YEARGAP	+	-0.2787	0.0528	-0.0040	0.4917	0.1864	0.1349	0.1529	0.2284
YEARGAP	?	0.2696	0.0324	0.0735	0.5887	0.1436	0.2388	0.0242	0.8728
SAT	+	0.0037	0.0019	0.0052	0.0002	0.0025	0.0248	0.0052	0.0002
GPA	+	2.0710	<.0001	2.9894	<.0001	2.4523	<.0001	2.6030	<.0001
GENDER	?	-0.5255	0.0252	-1.0723	<.0001	-0.7647	0.0016	-0.7095	0.0069
GRADUATE	+	0.2476	0.3129	0.9634	0.0410	0.2686	0.2958	-0.1369	0.4107
Q2	?	1.2554	0.0005	0.9684	0.0233	0.1495	0.6845	-0.2543	0.5696
Q3	?	1.0735	0.0010	1.0139	0.0067	0.1001	0.7784	0.1055	0.8006
Q4	?	0.8171	0.0126	0.5314	0.1312	0.0641	0.8507	-0.3533	0.3918
Year fixed effect		Controlled		Controlled		Controlled		Controlled	
N		403		381		375		384	
Pseudo R ²		0.2040		0.2772		0.1763		0.2568	

Note. See Table 1 for variable definitions. *p*-Values are based on one-tailed (two-tailed) tests for variables whose relation to the dependent variables is (is not) predicted.

found that the semester of the internship made a difference in the impact of the internship on the CPA exam performance. In addition, we also did not know whether the candidate completed an audit internship or a tax internship. Furthermore, we do not know whether a candidate completed a CPA review course prior to taking the CPA exam. The NASBA did not gather review course data, so it was unavailable to us for analysis. Each of these independent variables are appropriate items for future investigation.

A fourth limitation is the time frame of the study. We obtained a NASBA research grant that gave us access to individual candidate data from 2005 to 2013. The NASBA research grant is the only means by which individual candidate data can be obtained. Future researchers may wish to pursue a NASBA research grant to investigate whether the findings of the current study are stable, because the format and compositions of the CPA exam change over time.

In conclusion, our study is the first multivariate analysis to provide evidence that candidate performance on the modern CPA exam is significantly related to completion of an accounting internship. Specifically, we identify a positive relationship between an accounting internship and candidate performance on the AUD section of the CPA exam. Ours is the first multivariate

analysis study to examine this issue, and we believe our finding is of significant interest to educators, practitioners, and others interested in the determinants of successful performance on the CPA exam. In addition, our study provides insightful information for accounting programs to incorporate an accounting internship into their curriculum.

ENDNOTE

1. This business school is AACSB accredited, and graduates regularly accept positions in public accounting firms (including the Big 4), where they will be required to sit for the CPA exam.

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