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An exploratory examination of order effects on CPA exam passage timeliness

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ABSTRACT

We examine whether the order in which candidates take individual sections of the CPA exam is related to their timeliness of passing all four parts. We examine performance data from 121,234 unique candidates taking the exam during the period 2005–2013 and find that, on average, candidates who took the FAR section first passed all four sections more quickly than those who took any other section first. In addition, we find that candidates who took the BEC section first took, on average, significantly longer to pass the exam than those who took any other section first. We find some evidence that suggests that these findings are attributable to the fact that candidates who take and pass FAR (BEC) first were least (most) likely to lose credit for previously passed sections due to the requirement that all four sections of the examination be passed within an 18 month window. That is, candidates who take and pass FAR (BEC) first are least (most) likely to have to retake this section compared to all other sections.

1. Introduction

Successfully completing the Uniform Certified Public Accountant Exam (CPA exam) is a significant accomplishment for any accounting professional. Indeed, passage of the exam is generally a condition of employment for those who choose to work in public accounting and some firms require new

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associates to complete all parts of the exam within as little as three years from their initial date of employment. Given the importance of passing this professional exam, an investigation into the factors that may affect the likelihood of completing the exam in a timely manner is likely to be informative for both accounting educators and practitioners.

With the exam being offered at authorized testing locations throughout the year, candidates are able to schedule their taking of its four sections in any order that they like. The study investigates whether the length of time needed to complete all four parts of the CPA exam differs based upon the order in which the parts are taken. Using data provided by the National Association of State Boards of Accountancy (NASBA), we compare how long it takes individuals to pass all four sections based upon the order in which they take each section. Our examination yields significant differences in the time it takes to pass the examination across the various orderings. We find that candidates who take the BEC section of the examination first take, on average, almost four months longer to pass all four sections of the exam than those who take the FAR section first. Furthermore, the difference in the amount of time it takes to complete the exam between the "most efficient" and "least efficient" ordering is 7.62 months, representing an 82% difference. These results are striking and indicate that timely passage of the CPA exam does appear to differ based upon the order in which candidates take the individual sections.

This study contributes to the accounting literature in three ways. First, we contribute to the literature on CPA exam performance by examining whether the order in which candidates sit for the individual sections of the exam is related to their performance. To our knowledge, our study is the first to examine this issue. Second, we use a novel measurement, passage timeliness, to measure candidate performance, whereas most existing literature examines CPA exam performance by using test scores (e.g., Dunn & Hall, 1984) or passing rates (e.g., Boone, Legoria, Seifert, & Stammerjohan, 2006; Grant, Ciccotello, & Dickie, 2002). Finally, as supplemental analysis, we examine whether certain factors may influence the likelihood that candidates take the examination sections in a specific order.

The remainder of the paper is organized as follows. The next section presents background information on the CPA exam format and develops our research question. The subsequent section describes the data we used to conduct our analyses. This is followed by the presentation of our results. The final section presents the discussion and conclusions.

2. Background

Currently, all states require individuals to pass the Uniform CPA exam before becoming licensed public accountants. Indeed, the CPA credential is widely viewed in the business community as a symbol of trustworthiness and professionalism and, as such, is considered a desirable commodity by most accounting practitioners (Bunker & Flesher, 2013). While all but one jurisdiction (US Virgin Islands) requires candidates to complete 150 college credit hours before being licensed, many jurisdictions permit candidates to sit for the examination after earning only a bachelor's degree (AICPA, 2016).

The American Institute of Certified Public Accounts (AICPA) bears responsibility for writing and grading the exam, while administration of the exam is coordinated by the NASBA. Before 2004, the examination was administered twice per year in centralized testing centers within each jurisdiction. In addition, the exam was offered only in a pencil and paper (i.e., non-computerized) format and candidates were required to sit for all sections of the exam at one time. However, since April 2004, the exam has been offered solely in a computerized format and sections of the exam can be taken individually throughout the year at authorized testing centers.[1] As such, candidates are allowed to schedule their taking of the examination sections in any order that they like.

[1] Historically, the computerized exam has not been offered during the months of March, June, September, and December. These "blackout months" provide time to evaluate candidate performance and make any necessary modifications to the exam. Starting in 2016, the NASBA will allow candidates to sit for the exam through the tenth day of each blackout month. However, this ten days extension will be suspended between April and June 2017 to accommodate the launch of the next version of the exam (NASBA, 2016).

Currently, the four sections of the examination are Auditing and Attestation (AUD), Business Environment and Concepts (BEC), Financial Accounting and Reporting (FAR), and Regulation (REG). Generally, AUD tests content related to auditing, attestation, and internal control; BEC tests content related to economics, corporate governance, and financial management; REG tests content related to taxation and business law, and FAR tests content related to financial accounting, including government and not-for-profit accounting. Candidates are allowed four hours to complete the FAR and AUD sections and three hours to complete the REG and BEC sections. As a result, the total time required to sit for all four sections of the exam is currently fourteen hours.

Each examination section is composed of a series of multiple choice questions, as well as simulation exercises which require candidates to perform tasks such as conducting research and working with spreadsheets. As of 2011, BEC is the only section that contains written communication simulations to assess candidates' ability to produce effective business writing. The communication simulations are graded based on the organization, development, and expression of the candidate's writing. Technical proficiency is not graded, although candidates must generally respond to the topic presented. Each section of the exam is graded on a scale of one to 100 and candidates must attain a score of at least 75 points to pass a section.[2]

There are a number of factors that encourage candidates to pass the examination in a timely manner. First, in most jurisdictions, candidates are required to pass all four sections of the exam within 18 months of the quarter in which they passed their first examination. Candidates lose credit for each section passed outside the 18-month window and are required to retake those sections. As such, a candidate who delays his/her passage of all four exam sections may lose credit for previous sections passed.

Second, taking the exam is a costly endeavor. While specific examination fees vary by state, these fees generally range over $175–$200 per section, often on top of an additional registration fee that can be over $50 per section (NASBA, 2016). Furthermore, the most popular exam preparation courses cost several thousand dollars and access to electronic study resources often expires after the passage of a fixed amount of time.[3] While these fees and study material costs are sometimes reimbursed by the candidate's employer, it is often the case that such reimbursement is conditioned upon the candidate passing the exam in a timely manner. Thus, failure to pass the exam may result in these costs being borne by the candidate themselves.

Lastly, many public accounting firms offer significant incentives to encourage early passage of the exam. While the specific incentives can differ significantly by firm, it is not uncommon for firms to offer cash bonuses of several thousand dollars to candidates who pass the exam soon after joining the firm.[4] Additionally, many public accounting firms make passage of the exam a precondition of future employment, often linking the candidate's exam status to promotion to a manager position.[5] Since many firms follow an "up or out" promotion policy, timely passage of the exam can literally make the difference between employment and unemployment.

Given that candidates currently take each section of the exam individually and are allowed the flexibility to take the sections in any order, many wonder whether there is an optimal sequence for taking sections of the exam. Some advocate that candidates should take the section that they feel most confident in passing first (Welker, 2014). For many, this is likely to be the section with the highest pass rate, which is currently BEC. The logic behind this strategy is that passing a section early may

[2] Note that, beginning in 2017, the CPA exam will undergo a number of changes. These include an increased focus on higher order skills such as analysis, evaluation, and application; an increased emphasis on task-based simulation exercises; and an increase in the length of both the BEC and REG sections of the exam (AICPA, 2015).

[3] Some preparation course providers allow candidates to extend their access to review materials if the student does not pass the exam within a certain amount of time. However these extensions often require candidates to meet a number of eligibility criteria and may require him/her to pay additional fees (e.g., Becker, 2016).

[4] For example, KPMG currently provides a $5000 bonus to campus hire associates who pass all four parts of the exam either within their first year of employment or first year of CPA exam eligibility (KPMG, 2016).

[5] We searched job postings for "Assurance Manager" positions currently available at Big 4 firms through the website LinkedIn.com. All jobs postings that we reviewed required applicants to have passed all four sections of the CPA exam. Jobs postings that we reviewed for certain other positions in public accounting (e.g., Tax Manager) sometimes allowed for other credentials in lieu of CPA certification (e.g., J.D., LLM degrees).

Table 1
Descriptive statistics (n = 121,234).

Variable	Mean	SD
Timeliness	13.173	12.342
BEC	0.245	n/a
FAR	0.332	n/a
REG	0.190	n/a
AUD	0.233	n/a
FEMALE	0.375	n/a
AGE	26.463	5.739
Q1	0.196	n/a
Q2	0.241	n/a
Q3	0.335	n/a
Q4	0.228	n/a

This table presents descriptive statistics for our sample. Our sample represents individuals passing all four sections of the examination during the period 2005–2013. Timeliness is measured as the number of months it took for a candidate to pass all of the four sections. BEC, FAR, REG and AUD are indicator variables, which are coded as 1 if a candidate chose to take BEC/FAR/REG/AUD as their first section, and 0 if otherwise. FEMALE is an indicator variable, which is coded as 1 if a candidate is female, and 0 if otherwise. Age is the candidate's age when he/she sat for the first section taken. Q1, Q2, Q3 and Q4 are indicator variables, which are coded as 1 if a candidate first sat for an examination section in the first, second, third, or fourth quarter (respectively) and 0 if otherwise.

significantly boost a candidate's confidence and provide motivation to successfully pass future sections of the exam. This is also consistent with research from the general education literature on test-taking preferences, which suggests that students prefer that assessment be ordered from easiest to hardest (e.g., Allison & Thomas, 1986; Tippets & Benson, 1989).

Alternatively, others argue that candidates should take the section they believe they will have the most difficulty passing first (Bisk, 2014; Kolar, 2014). This is because it may take candidates multiple attempts to pass the hardest sections. As such, a unique characteristic of the CPA exam (as opposed to other professional exams) is that saving the most difficult sections until last could cause candidates to run up against the 18-month window, requiring them to retake previously passed sections. For many candidates, the most difficult section to pass is likely to be FAR, as this section has one of the lowest passage rates and is also one of the longest sections.

In light of the open debate about the optimal order in which to take the exam, we elected to examine CPA examination performance data to empirically investigate this issue. As such, we consider the following research question:

RQ: Does the length of time needed to complete all four parts of the CPA exam differ by the order in which the parts are taken?

3. Data

We obtained performance data for candidates who passed all four sections of the CPA exam during the period 2005–2013. NASBA provided the data related to a total of 121,234 unique candidates. Table 1 presents descriptive statistics.[6]

As noted in Table 1, the average candidate takes 13.17 months to pass all four sections of the examination. This measure begins with the date the candidate first sat for an examination section and ends with the date the candidate sat for the final section passed. Tests of skewness indicate a

[6] Data were provided as part of the Accounting Education Research Grants Program administered by the NASBA. The authors were provided with candidate performance data (i.e., individual exam scores) as well as demographic information.

right-skewed distribution suggesting that a relatively large number of candidates take a longer time than average to pass all four sections of the examination.[7] This is not surprising since, as a result of the computerized exam format, students can schedule their taking of examination sections at their own convenience. Thus, situational factors can influence candidates' timely passage of the overall exam. We also report statistics regarding which section of the exam candidates choose to take first. Students are most likely to take FAR first (33.2% candidates did so) and least likely to take REG first (19.0%). Candidates choose to take BEC and AUD first 24.5% and 23.3% of the time, respectively.

Table 1 also shows that, during the period from which our data are comprised, the average age of candidates in our sample is 26.5 years and that male candidates make up a significantly higher proportion of our sample than female candidates. Specifically, 62.5% of our samples are males, while only 37.5% are females. Furthermore, on average, male candidates complete the examination in 12.84 months, compared to females who take an average of 13.71 months (un-tabulated). While examining gender gap is beyond the scope of the current paper, our data suggest the existence of one with respect to the number of candidates passing all four sections of the exam and the timeliness in which the sections are passed.

Our descriptive statistics also reveal that more candidates first sit for an examination section during the third quarter testing window (33.5%) than during any other window. This is likely attributable to the fact that many candidates use the summer months to study for the exam and/or complete graduate studies and then immediately begin taking the exam in the fall. The least popular window for starting the examination is the first quarter (19.6%), likely due to the fact that this window coincides with the traditional public accounting "busy season." Finally, 24.1% and 22.8% of candidates first sit for an examination section during the second and fourth quarter windows, respectively.

We also examine the passage rates for the individual examinations within our sample (un-tabulated). We find that the overall passage rate of the BEC section of the examination is the highest at 50.78% while the lowest passage rate (48.97%) belongs to the FAR section of the exam. The passage rates for AUD and REG are 49.81% and 49.49%, respectively.[8]

4. Results

4.1. Primary analyses

We classify candidates by the order in which they take the individual sections of the CPA exam as a means of addressing our research question. We first examine the average number of months it takes candidates to pass all four sections based upon the section that they take first. Table 2 reports that candidates who take the FAR section of the exam first passed the entirety of the examination most quickly (on average, 11.21 months). Alternatively, candidates who take the BEC section of the examination first passed the entirety of the exam least quickly (on average, 15.19 months). This represents a difference of approximately 4 months or 35.5% percent. Candidates taking the AUD and REG sections of the exam first take an average of 13.92 and 13.08 months to pass the exam, respectively.[9] That is, individuals taking these sections first take 24.2% and 16.7% longer, respectively, than those taking the FAR section first. Note that this pattern is replicated when also examining our results within quartiles based upon exam passage timeliness. That is, taking FAR (BEC) first consistently results in more (less) timely passage of the entire exam.

In Table 3, we report and analyze differences in exam passage timeliness based upon the specific order in which candidates sit for each of the four sections for the first time. For parsimony sake, we

[7] The skewness statistics for the full sample is 2.46 (adjusted Fisher–Pearson coefficient of skewness). These statistics were 2.41, 2.17, 2.68 and 2.51 for subsamples based upon whether candidates took the AUD, BEC, FAR, or REG section (respectively) first.

[8] All of these passage rates are statistically different at the $p < .001$ level, with the exception of the REG versus AUD difference, which is significant at the $p = .012$ level.

[9] All passage timeliness statistics reported in this paragraph are statistically different from one another (all p-values < .001).

Table 2
Exam passage timeliness by first section taken.

First section		Average months	SD	Min	Max
AUD	All (n = 28,286)	13.92	13.00	1.00	105.00
	Quartile 1	3.55	1.82	1.00	6.00
	Quartile 2	7.75	1.54	6.00	12.00
	Quartile 3	13.57	1.73	12.00	18.00
	Quartile 4	30.80	15.39	18.00	105.00
BEC	All (n = 29,732)	15.19	13.37	1.00	102.00
	Quartile 1	4.03	1.85	1.00	6.00
	Quartile 2	9.16	2.03	6.00	12.00
	Quartile 3	14.65	2.13	12.00	18.00
	Quartile 4	32.96	15.07	18.00	102.00
FAR	All (n = 40,230)	11.21	10.52	1.00	102.00
	Quartile 1	2.63	0.99	1.00	3.00
	Quartile 2	6.64	1.37	3.00	9.00
	Quartile 3	11.01	1.81	9.00	15.00
	Quartile 4	24.55	12.80	15.00	102.00
REG	All (n = 22,986)	13.08	12.54	1.00	102.00
	Quartile 1	3.19	1.54	1.00	6.00
	Quartile 2	7.35	1.49	6.00	9.00
	Quartile 3	12.57	1.99	9.00	15.00
	Quartile 4	29.20	15.18	15.00	102.00

This table presents the average number of months it took the candidates in our sample to pass the CPA exam classified into four categories based upon which of the four sections of the exam they took first. These results differ significantly between each of the four categories (all p's < .001). Results are presented both for the full sample and for quartiles based upon passage timeliness.

Table 3
Exam passage timeliness by examination order.

Order	N	Months	SD	Min	Max
Most timely passage					
FAR – AUD – REG – BEC	11,128	9.27	9.24	1	93
FAR – REG – AUD – BEC	4961	10.31	10.02	1	102
REG – FAR – AUD – BEC	2910	10.97	10.59	1	84
AUD – FAR – REG – BEC	4002	11.48	11.49	1	96
FAR – BEC – REG – AUD	6057	11.56	10.62	1	93
Least timely passage					
BEC – AUD – REG – FAR	5526	16.89	14.28	1	102
BEC – REG – AUD – FAR	5355	16.34	13.68	1	102
REG – BEC – AUD – FAR	5215	16.13	14.07	1	102
AUD – BEC – REG – FAR	5704	15.75	13.68	1	105
BEC – AUD – FAR – REG	4423	15.51	13.47	1	93

We compared the timeliness of passing all four sections of the examination based upon the order in which candidates first took each of the individual sections. This table presents the five examination orders that are associated with the timeliest passage of the exam, as well as the five examination orders that are associated with the least timely passage of the exam. These results differ significantly between each of the orderings presented (all p's < .05) except the differences between AUD – FAR – REG – BEC and FAR – BEC – REG – AUD; BEC-REG-AUD-FAR and REG-BEC-AUD-FAR; REG-BEC-AUD-FAR and AUD-BEC-REG-FAR; AUD-BEC-REG-FAR and BEC-AUD-FAR_REG. The standard deviations as well as minimum and maximum numbers of months needed to pass the exam by ordering are also presented.

only report the five orderings that result in the most (and least) timely passage of all four sections of the examination. Our results indicate that, on average, candidates pass the exam most timely (in 9.27 months) when they take FAR first, followed by AUD, REG, and BEC. In contrast, on average, candidates pass the exam in the least timely manner (in 16.89 months) when they take BEC first, followed by AUD, REG, and FAR. This represents an 82.2% difference between the most efficient and least efficient orderings. Furthermore, we find that three of the five most efficient orderings involve candidates

taking the FAR section first (and all five involve candidates taking this section either first or second). In addition, three of the five least efficient orderings involved candidates taking the BEC section first (with all five involving candidates taking BEC first or second). These results support the contention that, on average, candidates pass the exam most timely when they take what our data suggest may be the most challenging section first (FAR) as opposed to the least challenging section first (BEC).

Having examined the relative efficiency of the various orderings, we next seek to consider possible reasons for the identified differences. Note that an argument against taking the most difficult exam sections last is that it may be more likely that candidates will have to retake earlier passed sections when employing this strategy. This is because, as a result of the overall 18-month passage requirement, delays in completing subsequent parts of the exam may cause candidates to lose credit for earlier sections that they have already passed. As an example, if an individual candidate expects to have the least difficulty passing BEC and the most difficulty passing FAR, taking BEC first might be an unwise strategy. That is, delays in passing the FAR section could lead them to lose credit for passing the earlier BEC section, potentially forcing it to be retaken and lengthening the time needed to pass the exam overall. To examine this issue in detail, we classify candidates based upon the examination section which they take and pass first and then compare how many candidates subsequently retake that first section.

Table 4 Panel A indicates that candidates are most likely to retake their first passed section when that first section is BEC. Specifically, 8.83% of candidates taking and passing BEC first eventually retake that section. Alternatively, candidates who take and pass FAR first are the least likely to have to retake that section; only 1.71% of candidates retake that section. Collectively, this indicates that candidates are over five times as likely to retake their first section taken and passed when that section is BEC as opposed to FAR. The rates for REG and AUD are 4.58% and 6.33%, respectively. As a result, it appears to be the case that differences in the proportion of candidates retaking their first passed section of the exam may help explain why some orderings are more efficient than others.

Table 4 Panel B reports the total number of retakes experienced by candidates across the entire sequence of the exam based upon the section that was taken first. Note, the average candidate in our dataset experienced fewer total retakes when sitting for the FAR section of the exam first (1.63) compared to sitting for any other section first. Conversely, the average candidate experienced the greatest number of retakes when taking the BEC section of the exam first (2.23).

Table 4
Analysis of retakes.

Panel A: First section retakes by first section taken and passed	
Section	% Who retake
AUD	6.33%
BEC	8.83%
FAR	1.71%
REG	4.58%
Panel B: Average # of retakes by first section taken	
Section	Average # of retakes
AUD	2.06
BEC	2.23
FAR	1.63
REG	1.95

Panel A reports the percentage of candidates who were required to retake their first passed examination due to the expiration of the 18-month window. Results are reported by the section that the candidate took and passed first. These results differ significantly between each of the four orderings (all p's < .001). Panel B reports the average number of total retakes by the section that the candidates took first. These results also differ significantly between each of the four orderings (all p's < .001).

4.2. Supplemental analysis

As discussed previously, more candidates choose to take the FAR section first as opposed to any of the other sections. We examine whether demographic factors influence the likelihood that candidates choose to take this (or other) particular examination sections first. We ran four logistic regressions with our binary dependent measure representing whether the candidate took each of the four sections first. We included the demographic factors discussed previously as our independent variables. The specification of each of the regressions is as follows:

$$\text{SECTION\_TAKEN\_FIRST} = \beta_0 + \beta_1 \text{FEMALE} + \beta_2 \text{AGE} + \beta_3 \text{Q2} + \beta_4 \text{Q3} + \beta_5 \text{Q4} + \varepsilon.$$

While Table 5 reports the full results of this supplemental analysis we would like to point out some observations that we feel are particularly notable. First, we find some evidence that the window in which candidates begin taking the exam is associated with the section they choose to take first. That is, candidates are significantly more likely to take the FAR section of the exam and less likely to take the AUD and BEC sections during the third quarter testing window (July–August). One possible explanation for this difference may be that many candidates preparing for the exam are still students who may choose to use the summer months to study for the section perceived as the most challenging. Alternatively, students may perceive that the FAR section is most relevant to their accounting coursework and may, therefore, choose to take this section as close to the completion of their studies as possible.

Our results also suggest that older candidates appear to be less likely to take the FAR section first, but more likely to take the AUD and BEC sections first compared to other candidates. This may be due to the fact that some older candidates may have audit related work experience and, as such, may choose to take that section of the examination first.

We also find that males are significantly more likely than females to take the BEC and FAR sections of the examination first but less likely to take the REG and AUD sections first. As a result, it appears that males are more likely to select the most and least effective order strategies while females are more likely to choose a middle-of-the-road approach. To provide additional detail to this observation, in Table 6, we compare the pass rates and sections taken first across genders. As discussed earlier, FAR and BEC are the sections of the exam that had the lowest and highest pass rates (respectively) in our dataset. To the extent that taking the most difficult or least difficult section of the exam first is considered more risky, our findings may reflect differences in risk preferences between male and female candidates. Indeed, a number of studies indicate that men often express a greater willingness to engage in risky behavior than do females (see, e.g., Byrnes, Miller, & Schafer, 1999; Harris & Jenkins, 2006). While our study cannot speak to this issue directly, future studies may wish to consider whether risk preferences lead to different exam ordering strategies between males and females.

Table 5
Logistic regression: likelihood of taking individual sections first $n = 121{,}234$.

Variable	BEC		FAR		REG		AUD	
	Estimate	Pr > ChiSq	Estimate	Pr > ChiSq	Estimate	Pr > ChiSq	Estimate	Pr > ChiSq
Intercept	–1.4118	<.0001	–0.2891	<.0001	–1.4667	<.0001	–1.3524	<.0001
FEMALE	–0.0547	<.0001	–0.0839	<.0001	0.069	<.0001	0.0986	<.0001
AGE	0.0109	<.0001	–0.0163	<.0001	0.00107	0.4007	0.00638	<.0001
Q2	0.134	<.0001	–0.274	<.0001	–0.0567	0.0107	0.207	<.0001
Q3	–0.1475	<.0001	0.2395	<.0001	0.0308	0.1339	–0.1917	<.0001
Q4	0.138	<.0001	0.1263	<.0001	–0.1758	<.0001	–0.1589	<.0001

This table reports the results of four logistic regressions designed to examine the likelihood of taking each of the four exam sections first. The dependent variable was coded as a 1 if a candidate took a particular section first, and 0 if otherwise. See Table 1 for the definitions of the independent variables included in these models.

Table 6
Exam passage timeliness by gender.

First section	Male			Female		
	% of Males	Months	Std. dev	% of Females	Months	Std. dev
AUD	22.74%	13.73	12.89	24.34%	14.21	13.17
BEC	24.97%	14.87	13.20	23.77%	15.77	13.66
FAR	33.75%	10.94	10.25	32.22%	11.68	10.95
REG	18.54%	12.69	12.36	19.67%	13.68	12.82
Total	100%			100%		

This table presents the average number of months it took the candidates in our dataset to pass the CPA exam. Candidates were classified into four categories based upon which of the four sections of the exam they took first. Results are presented for two subsamples based upon whether the candidate was male or female. The percentage of candidates taking each section first is also presented.

5. Conclusion

We believe our study makes an important contribution to the literature on the determinants of CPA examination success. Specifically, we find evidence that the length of time needed to complete all four parts of the CPA exam differs by the order in which the parts are taken. Furthermore, we find that the average candidate is likely to pass the examination most quickly when taking the FAR section of the examination first and least quickly when taking the BEC section first. While others have used anecdotal information to argue that a particular exam ordering may be preferential (e.g., Bisk, 2014; Welker, 2014), we are the first study to examine this issue using actual empirical data.

We want to point out, however, that our results are subject to some limitations. First, while our evidence suggests that, on average, candidates complete the exam in a more timely manner when they take the FAR section first, this does not mean that such a strategy will be effective for all individuals. We do not wish to infer that students who take the exam in a particular order are "stronger" candidates than others. Indeed, candidates have their own test taking strengths and weaknesses, which are likely to influence the particular exam ordering that is most effective (for example, students who believe they will struggle with the BEC section might be well served by strategically taking that section first). As such, we want to be clear that this research is not intended to provide future candidates with an "optimal order" in which to take the examination, nor is it intended to suggest that "stronger" candidates are more likely to take the exam in a particular order.

Second, while we present information on exam retakes for informational purposes we recognize that the number of retakes that a candidate experiences may not necessarily be an accurate indicator of the candidate's exam performance or candidate strength. For example, consider the performance of a candidate who passes all four sections of the exam over a period of six months with one retake to a candidate who passes all four sections of the exam over a period of eighteen months with no retakes. Although the former candidate did experience a retake, it is also true that he or she would possibly be evaluated more favorably for having passed all sections of the exam twelve months earlier than the latter candidate.

Next, our analysis is an association study and our dataset does not permit us to conclusively identify the specific reasons why candidates tend be more efficient in completing the exam when taking the FAR section first. That is, because the candidates self-select the order in which they take the exam (as opposed to being randomly assigned to an order as would occur under ideal experimental conditions), we cannot definitively attribute our effects to any one specific cause. We do find some evidence that suggests that expiration of the 18-month window may contribute to the loss of efficiency when taking sections other than FAR first; however, other factors may also play a role (i.e., perhaps it is advantageous to closely align one's taking of the FAR section with the completion of one's college coursework or perhaps stronger students tend to take the FAR section first).

Finally, we note that the AICPA has adopted changes to the CPA exam, which will be implemented in 2017 (AICPA, 2015). These changes include a greater focus on higher order skills (such as evaluation, analysis, and application), an increase in the proportion of the exam devoted to task-based simulation

exercises, and an increase in the length of the BEC and REG sections from three to four hours. While the concepts tested on the new exam are expected to remain relatively consistent compared with those tested in earlier versions of the exam, it is possible that these changes could affect the efficacy of the various strategies we examine in this paper. Future research may wish to re-examine our research question once a sufficient amount of performance data on the new exam has been collected.

We do believe that our results also present some interesting opportunities for future research. For example, future studies might wish to examine whether other factors (such as candidate workload and professional responsibilities) impact the success that candidates have in completing the exam in a particular order. In addition, future studies could investigate additional reasons why candidates tend to select particular ordering strategies when scheduling the exam. For example, differences in risk preferences may help to explain the order in which candidates prefer to take the exams considered more (or less) challenging. Indeed, a significant body of prior research indicates that males are typically more risk-seeking while females are typically more risk averse (see, e.g., Byrnes et al., 1999; Harris & Jenkins, 2006). To the extent that such risk preferences impact candidates' ordering of the exam (e.g., perhaps males are more likely to take the sections of the exam perceived as more challenging first) this may help to explain the significant performance gap between the genders that our findings demonstrate. While access to high quality data would likely represent the most significant challenge for researchers intending to examine these issues, the results of such studies would be of important interest to both accounting professionals and academics.

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