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John Morgan  
*Winona State University*

J. Lawrence Bergin  
*Winona State University*

Larry Sallee  
*Winona State University*

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## AN INVESTIGATION OF THE RELATIONSHIP BETWEEN AACSB BUSINESS SCHOOL ACCREDITATION AND CPA EXAM SUCCESS RATES

John Morgan, Winona State University  
J. Lawrence Bergin, Winona State University  
Larry Sallee, Winona State University

*The Association to Advance Collegiate Schools of Business-International (AACSB) is widely to be the world's foremost accrediting agency of business schools. AACSB promotional literature asserts AACSB accreditation is associated with higher quality business education and higher quality business school graduates. The assertion of higher quality is somewhat controversial and to date has not been well supported by empirical evidence. The research presented below investigates whether recent business school graduates taking the uniform certified public accountants exam score higher when from AACSB accredited institutions rather than when from non-AACSB accredited institutions. Results indicate that graduates of AACSB accredited business schools do in fact score significantly higher on all parts of the uniform certified public accountants exam than do their counterparts from unaccredited institutions.*

The paper below is organized as follows. First, we will describe the Association to Advance Collegiate Schools of Business-International (AACSB) including its purpose and scope and the major aspects of the accreditation process. Second, we will describe the uniform certified public accountants exam (CPA exam), its history, content, and purpose which is to measure professional competence of those entering the field of accounting. Third we will give the motivation for this research including hypotheses tested. Fourth, we describe our research design, sample selection methods, variables tested, and method of analysis employed. Finally, we present our results followed by discussion, conclusions, and suggestions for further research.

### AACSB ACCREDITATION AND QUALITY BUSINESS EDUCATION

If number and size of business schools is the measure, then the AACSB is the world's premier business school accrediting agency. AACSB has as its stated mission to advance the quality of management education worldwide. A large percentage of larger U.S. colleges and universities presently have business schools which are AACSB accredited as can be seen in Table 1 below. The proportion of accredited schools in this table suggests the clear dominance of AACSB as an accrediting agency for the nation's bigger schools.

**Table 1: Four Year Colleges and Universities With 20 or More Accounting Graduates Sitting for the 2006 Uniform CPA Exam**

UNDERGRADUATE ENROLLMENT*	Percentage of Category Accredited	NUMBER OF AACSB ACCREDITED SCHOOLS	NUMBER OF NON-AACSB ACCREDITED SCHOOLS	TOTAL
24,000 +	100%	35	0	35
12,000 - 24,000	89%	123	15	138
4,000 - 12,000	77%	140	43	183
0 - 4,000	31%	29	66	95
<b>TOTALS</b>	-----	327	124	451

\*-- source of data is the intersect of published list of AACSB International accredited business schools with NASBA's listing of U.S. four year colleges and universities having 20 or more candidates sitting for the 2006 uniform CPA exam

Several things are noteworthy in Table 1. First, the nation's 35 largest universities (each with enrollments exceeding 24,000 undergraduates) all have AACSB accredited business schools. There are virtually no business schools not accredited by the AACSB at universities having undergraduate enrollments exceeding 24,000. Second, at institutions with undergraduate enrollments between 12,000 and 24,000, the accredited to unaccredited ratio is still higher

than nine to one suggesting the impressive dominance of AACSB accreditation at medium sized universities with enrollments between 12,000 and 24,000 undergraduates. Table 1 also makes clear that while even smaller universities are somewhat less likely to be AACSB accredited, they nevertheless are proportionately more accredited than unaccredited at those schools whose undergraduate enrollments exceed 4,000. Specifically, a full 77% of all

U.S. colleges and universities having undergraduate enrollments between 4,000 and 12,000 (and having 20 or more graduates sitting for the CPA exam) are presently AACSB accredited. Only colleges and universities with undergraduate enrollments below 4,000 students are proportionately less accredited than unaccredited in 2007. All together the numbers in Table 1 make evident the prominent position of the AACSB as an accrediting agency of the nation's larger business schools.

On the AACSB's website (January 2007), the AACSB describes its mission as being, "The mission of AACSB International is to advance quality management education worldwide through accreditation and thought leadership". In one of its written publications, the AACSB describes the purpose of accreditation as, "Accreditation focuses on the quality of education" (AACSB, 2007, p. 1).

Founded in 1916, the AACSB first established quality standards for member schools in 1919. Since 1919, AACSB accreditation requires that member schools provide periodic evidence that they meet AACSB quality standards. Quality standards are now categorized into three major groupings: 1) strategic management standards; 2) participant standards, and; 3) assurance of learning standards. Briefly, strategic management standards include a school's mission and vision which must be developed from input from a wide variety of interested stakeholders. Accredited schools must include in their vision and mission, among other things, the expectation of production of intellectual contributions by the business faculty.

Participant standards specify student populations to be served, curriculum and learning objectives, and the characteristics of faculty who provide business education. AACSB participant standards require a large percentage of the business faculty to be "academically qualified" meaning they own terminal degrees such as a Ph.D. or DBA in a business field and also have one or more recently published intellectual contributions (e.g. usually within the most recent five years). Faculty degree and publication requirements are often the most difficult standard to meet for many smaller schools seeking AACSB accreditation.

Finally, AACSB standards concerned with assurance of learning emphasize the necessity of assessment and continuous improvement in all aspects of on-going business education. These standards require a continuous assessment business programs and evidence of changes occurring when shortcomings are identified.

On the surface, AACSB quality standards in all three areas (i.e. strategic management standards, participant standards, and assurance of learning standards) seem consistent with the advancement of quality in business education. Nevertheless there remains some controversy whether this is actually the case.

## THE CPA EXAM AS A MEASURE OF PREPAREDNESS IN ACCOUNTING

The uniform Certified Public Accountants examination (CPA exam) is a long standing regulatory requirement for becoming a licensed CPA in all fifty-four U.S. jurisdictions (50 states, Washington, DC, Puerto Rico, American Virgin Islands and Guam). In the years since its inception in 1917, the uniform CPA exam has gained a nearly universal acceptance as the single most prestigious indicator of preparedness for entry into the profession of accounting. Each year thousands of candidates take the CPA exam for reasons of personal career advancement alone, and without any intent to become licensed auditors. According to the American Institute of Certified Public Accountants website (January 2007), the mission of the CPA examination is "to admit individuals into the accounting profession only after they have demonstrated the entry-level knowledge and skills necessary to protect the public interest in a rapidly changing business and financial environment." One influential group of CPA sponsoring organizations states that, "since 1917, the Uniform CPA Examination has proven to be a highly valid and reliable measure of candidate abilities. This focus on quality has made it possible for all United States jurisdictions to rely on the results in determining who is competent to practice public accounting in order to protect the public." (NASBA, AICPA, and Prometric, 2007, p. i).

Adding to the prestige of CPA exam success is the very difficulty of achieving that success. Passing the CPA exam is difficult. Admission to sit for the uniform CPA exam in all 54 jurisdictions is permitted only after successful completion of numerous college level business and accounting courses which de facto are the equivalent of a four year business degree with a concentration or major in accounting. Most states also now require some form of the "150 hour rule." This rule requires candidates to earn a bachelors degree (normally 120 semester hours) with a concentration or major in accounting plus an additional 30 semester hours of university study before being allowed to sit for the CPA exam and/or before licensure. In spite of the considerable educational requirements prerequisite to being allowed to take the uniform CPA exam, first time candidates continue to have low overall pass rates relative to other major professional exams. Fewer than ten percent of all first time candidates who take all four parts of the CPA exam at once, pass the exam in one attempt (Zhang and Yanwei, 2006; NASBA et al., 2007).

The structure and content of the CPA examination has undergone revision several times since 1917 to keep up with the changing nature of the accounting profession. Responsibility for updating CPA exam rests with a Board of Examiners of the American Institute of Certified Public Accountants (AICPA). Although each of the 54 jurisdictions in the U.S. sets its own education, experience, and residency prerequisites for taking the exam, all candidates sit for the same exam and all exams are graded

uniformly across jurisdictions. Passing the uniform CPA exam is the single requirement identical in all 54 jurisdictions. Because of its difficulty to pass and its widespread acceptance as the single best comprehensive measure of knowledge and skills needed by beginning accountants to enter the accounting profession, it is an ideal tool for comparing the comparative qualities of business school graduates across the United States.

A significant revision to the uniform CPA examination occurred in April of 2004. This revision for the first time created an entirely computer-based CPA exam and adding the testing of skill sets necessary for accountants operating in a rapidly changing business environment. The Board of Examiners of the AICPA describes and categorizes the required new skills sets into five areas:

1. COMMUNICATION is the ability to effectively elicit and/or express information through written or oral means.
2. RESEARCH is the ability to locate and extract relevant information from available resource material.
3. ANALYSIS is the ability to organize, process, and interpret data to provide options for decision-making.
4. JUDGEMENT is the ability to evaluate options for decision-making and provide an appropriate conclusion.
5. UNDERSTANDING is the ability to recognize and comprehend the meaning and application of a particular matter.

In addition to the skills sets tested, the CPA exam continues to measure knowledge of general business and accounting, and auditing, but has reorganized the required knowledge into four domains each which is tested separately. Examiners now require candidates to pass four separate exam sections as follows (NASBA, et al., 2007, p. 21.):

1. AUDITING AND ATTESTATION (4.5 hours): (AUD) – This section covers knowledge of auditing procedures, generally accepted auditing standards and other standards related to attest engagements, and the skills needed to apply that knowledge in those engagements.
2. BUSINESS ENVIRONMENT AND CONCEPTS (2.5 hours): (BEC) – This section covers knowledge of general business environment and business concepts that candidates need to know in order to understand the underlying business reasons for, and accounting implications of, business transactions, and the skills needed to apply that knowledge.
3. FINANCIAL ACCOUNTING AND REPORTING (4.0 hours): (FAR) – This section covers

knowledge of generally accepted accounting principles for business enterprises, not-for-profit organizations, and government entities, and the skills needed to apply that knowledge.

4. REGULATION (3.0 hours): (REG) – This section covers knowledge of federal taxation, ethics, professional and legal responsibilities, and business law, and the skills needed to apply that knowledge.

The revised computer-based CPA exam (which includes testing of skill sets under reorganized knowledge domains) represents the single largest set of changes ever made to CPA exam since its inception in 1917. The new CPA exam continues to be a comprehensive measure of candidates' readiness to enter and operate in the accounting profession. Not everyone agrees that CPA exam success appropriately measures quality of accounting education. Many accounting programs employ multiple measures to assess quality. Ponemon (1998), while agreeing that the CPA exam is a reliable and valid assessment of technical accounting, financial reporting and auditing knowledge, he nevertheless is cautious about its use as a sole measure for assessing the effectiveness of college level accounting programs for the following reasons:

1. The exam is not a complete measure of accounting knowledge, aptitude or mastery.
2. Many high quality accounting programs in the United States do not focus solely on the public accounting career track for students.
3. The vast majority of today's accounting majors will not work in the public accounting field.
4. Major accounting firms have shifted their recruiting focus away from individuals with an accounting degree.
5. Overreliance on one exam may hinder the development of innovative curriculum and teaching approaches.
6. Directing teaching toward the CPA exam specifications implicitly shifts the burden of curriculum design to the AICPA and the State Boards of Accountancy.

In spite of his reservations, Ponemon acknowledges the importance of success on the CPA exam as a key indicator of accounting program quality.

Schick (1998) makes a case that CPA exam results are in fact the best single indicator of quality undergraduate accounting education. He argues that professional education by definition has as its objective fostering of the professional success of students. Since students and their parents pay significant amounts of money to get an accounting education making it possible to pass the CPA exam, students and parents are, in a sense, customers of a university's services. Schick argues it is only appropriate that accounting departments provide the business education desired by

paying customers who wish to become certified public accountants. Schick believes business schools should help students achieve their professional goals. Quality accounting education by definition helps graduates pass the CPA exam.

The National Association of State Boards of Accountancy (NASBA) annually publishes Candidate Performance on the Uniform CPA Examination. This publication reports CPA exam results by the school at which the candidate completed his/her undergraduate business education. Colleges and universities with high CPA exam pass rates routinely publicize these positive outcomes in student recruiting presentations and materials. Additionally, state CPA societies have been known to rely on NASBA's reported CPA exam success rates to determine how much money they will award in student scholarship money to various colleges and universities within their jurisdictions. De facto the CPA exam success has become an important measure of quality in accounting education.

### MOTIVATION AND HYPOTHESES TESTED

The issue of accreditation and its association, if any, with higher quality accounting education is important in today's environment in which an increasing number of universities, particularly smaller ones, expend significant resources to seek AACSB accreditation in order to enhance their reputations both internally and externally. AACSB promotional literature asserts AACSB accreditation is positively associated with higher quality business education and higher quality business school graduates. This claim of higher quality is in fact controversial, and to date has little empirical evidence in its support.

Critics of AACSB accreditation often contend accreditation standards place too much emphasis on faculty research, publication successes, and the Ph.D. credential itself at the expense of effective classroom teaching and real world professional experience of instructors. These critics believe AACSB standards have too often led to promotion and tenure of weaker even uninterested classroom teachers by virtue of their publication successes. And this to the detriment of more capable classroom teachers with real-world business experiences who only because they have little interest in academic research. Smith (2007) criticizes the AACSB accreditation process for its over emphasis on research and Ph.D. degrees arguing that individuals having MBA or MACC degrees, good teaching skills, minimal research skills, and practical work experience are often more capable and better accounting instructors than those required under AACSB standards. Unaccredited programs clearly are able to employ more of this type instructor than AACSB accredited institutions. Smith suggests the AACSB's focus on publication, research, and the Ph.D. degree often result in a net detriment to good accounting education by squeezing out better teachers and advancing poor ones who have published.

Business schools not having AACSB accreditation sometimes obliquely make this argument when they point out, that unlike their AACSB accredited competitors, they are primarily "teaching" institutions. Implied in this claim is that students encounter better classroom teachers and higher quality classroom experiences than at AACSB institutions which by necessity advance faculty whose success is based more on research than teaching. Institutions without AACSB accreditation face no penalty for advancing faculty whose interest is the art of teaching alone. AACSB institutions cannot do this and maintain accreditation.

Advocates of AACSB accreditation counter their critics by saying that active participation in scholarly research often contributes to and fosters engaged faculty teaching. Indeed, Bell, Frecka, and Solomon (1993) found a positive correlation between an instructor's research output and an instructor's scores on student evaluations. Proponents of the benefits of AACSB accreditation additionally contend that accreditation in its entirety emphasizes program assessment and continual improvement which offsets minor compromises to teaching effectiveness resulting from having a research oriented faculty.

What seems clear is that differing opinions exist within academe concerning the overall relationship of AACSB accreditation to the quality of undergraduate business and accounting education. Our research is motivated by a desire to better understand whether there is an observable empirical relationship between AACSB business school accreditation and CPA exam success rates, a widely respected measure of quality in accounting education. We ask whether accounting graduates from AACSB accredited business programs do in fact demonstrate higher quality through better performance on the new computer-based certified public accountants exam than do accounting graduates from non-AACSB accredited business schools. Formally, we test two hypotheses (both stated in the alternative) which are:

**Hypothesis 1:** Pass rates of AACSB business school graduates on all parts of the 2006 CPA exam taken will be higher than those of non-AACSB business school graduates.

**Hypothesis 2:** Failure rates of AACSB business school graduates on all parts of the 2006 CPA exam taken will be lower than those of non-AACSB business school graduates.

Our study differs from earlier studies in several ways. First, it investigates success and failure rates within the context of the newly revised computer based CPA exam, something that has not yet been done. Second, our study includes a much larger group of AACSB accredited institutions than earlier studies due to the rapid growth in accreditation in recent years. AACSB website numbers indicate a 45% increase to the number of accredited business schools since the year 2000. Because newly accredited

schools tend to have smaller enrollments than those accredited in the past, the nature of the relationship between AACSB accreditation and CPA exam success rates may be changing. Third, our research is also unique because it investigates the relationship between AACSB accreditation and CPA exam success rates in comparisons of schools of approximately similar undergraduate enrollments (e.g. small, medium and large enrollment comparisons), something that has not been done.

Two earlier studies should be mentioned here. Both have investigated the relationship between AACSB accreditation and CPA exam success rates though both are based on the older paper based CPA exam as a dependent variable. Both of these studies include a much smaller sample size than ours and make only overall comparisons. These two studies arrived at differing conclusions about the relationship between CPA exam success rates and AACSB accreditation. Grant, Ciccotello, and Dicke (2001) reported a positive effect of AACSB business school accreditation on CPA exam performance. Specifically, the study reported an average 7.653% higher pass rate at AACSB accredited business schools for first time candidates passing at least two of the four parts of the old paper based CPA exam. A later study by Boone, Legoria, Seifert, & Stammerjohan, (2006) reached a different conclusion. Boone et. al. reported a weak association, if any, between program-level pass rates and AACSB accreditation after eliminating the effects of selectivity in admitting students. We will discuss our findings in relation to these earlier studies later in the paper.

#### RESEARCH DESIGN, SAMPLE SELECTION, VARIABLES, AND DATA ANALYSIS

The research design employed in this study is correlative and thus provides no logical basis for causal inferences about associations, if any are discovered. Causal inferences require an experimental design in which the researcher actively manipulates a research variable of interest to randomly assigned groups. Upon administering the research variable of interest to one group but not the other group (i.e. the control group), the researcher observes the systematic effects of the research variable on the treated group and compares it to the untreated group. Through this approach it is possible to isolate the systematic "causal effects", if any, of the administered research variable. Other systematic differences across groups are presumed non-existent because of the random assignment of subjects to groups.

Because our research variable of interest (AACSB accreditation status) could not be actively manipulated, and because subjects could not be randomly assigned to groups (i.e. AACSB accredited and non-AACSB accredited groups) only a correlative design was possible. Correlative designs seek to identify consistent and predictable relationships between variables without making causal inferences concerning their relationship (Bryman and Cramer, 2005). Our study does suggest whether AACSB accreditation

causes systematic differences in CPA exam pass rates, only whether systematic associations between CPA exam pass rates and AACSB accreditation exist.

The sample tested in this study was gathered from the intersection of two publically available databases. The first database comprised all U.S. four year colleges and universities per U.S. Department of Education, Institute of Education Sciences--National Center for Education Statistics, 2006-2007. The National Center for Education Statistics include a list of four-year colleges and universities residing within the United States and District of Columbia. This database also provided us with official undergraduate enrollments for each school allowing comparisons of schools of approximately similar enrollment sizes. Our sample included only colleges and universities described in the National Center for Education Statistics as "four-year undergraduate colleges and universities". Schools identified as either "two-year colleges" or "graduate universities" (i.e. having more graduate students than undergraduates) were excluded.

The second database, intersecting with the first and used by us to select schools for our analyses, was Candidate Performance on the Uniform CPA Exam, 2007 edition. This data is published by the National Association of State Boards of Accountancy and lists all schools and universities having five or more graduates (bachelor's degree graduates) sitting for the 2006 uniform CPA exam along with the pass rates for each school's candidates. To be included in our sample a college or university intersected both data sets. That is, we included only U.S. four-year undergraduate colleges and universities having 20 or more of its graduates sitting for the 2006 uniform CPA exam. Since Candidate Performance on the Uniform CPA Exam provides rates of success and failure rather than numbers, we chose to exclude schools having fewer than 20 candidates serving as the basis for calculating a particular school's average pass rate. Pass rates at schools having fewer than 20 candidates were judged too unstable. For example, a school having five candidates sitting for the 2006 exam who passed all parts would be reported in Candidate Performance on the Uniform CPA Exam as having a 100% pass rate. This same school a year later might have another five graduates sitting for the CPA exam who failed all parts and would now be reported as having a 0% pass rate. Neither the 100% rate from year one or the 0% pass rate from year two would be a particularly reliable or stable measure of the school's long-term average CPA exam pass rate because the pool of candidates on which the rate is calculated is too small. Because of this stability issue, we chose a priori to include in our study only schools with average pass rates calculated using 20 or more candidates in 2006. We did note that nearly all AACSB accredited schools with enrollments of at least 2,000 met the threshold of having 20 or more graduates sitting for the 2006 CPA exam. Our arbitrary cutoff of twenty candidates minimum resulted fewer than 5 schools being deleted.



From the selection approach described above, our final sample consisted of 451 U.S. four-year undergraduate colleges and universities each having 20 or more accounting graduates sitting for the 2006 uniform CPA exam. Of the 451 schools, 327 were discovered to be AACSB accredited and 124 were not. Accreditation status was determined through consulting the online listing of AACSB accredited business schools per their website on January 9, 2007. Table 1 (see page 4) provides a summary of the 451 sample schools by accreditation status and their undergraduate enrollments.

Analyses were performed using independent-samples t-tests for the purpose of identifying statistically significant differences (if any) between the mean CPA exam success rates for graduates from AACSB accredited and non-AACSB accredited schools. Independent-samples t-tests are a well known and widely used test statistic when comparing the means of two independent groups both sharing a common variable of interest (i.e. CPA exam success rates in this case), with the groups having no overlapping membership (George and Mallery, 2005). T-tests do not require groups being compared to have equal numbers, but do assume equal variances within the two groups. When group variances differ significantly (as determined using Levine's test), an alternate t-statistic is calculated replacing the t-value computed under the default assumption of equal variances across groups (Norusis, 1998). All reported analyses included Levine's test, and t-values were adjusted in the single case where variances between the two compared groups were determined statistically unequal.

The dependent variable for all comparisons was based on each sample school's reported 2006 CPA exam pass rates per Candidate Performance on the Uniform CPA Exam, 2007 Edition. Separate analyses were made for the six reported pass rates included in Candidate Performance on the Uniform CPA Exam, 2007 edition—namely each of the four separate sections of the CPA exam (i.e. pass rate on financial accounting and reporting, pass rate on auditing, pass rate on the regulation, and pass rate on the business environment), and also pass rates reported for candidates "passing all parts taken", and pass rates reported for candidates "passing no parts taken". These six indicators of

CPA exam success were compared between various groups of AACSB accredited and non-AACSB accredited schools.

In addition to the overall analysis including all 451 sample schools, additional comparisons were made based on subsets of schools with approximately equal undergraduate enrollments. A summary of these additional comparisons included:

- 1) Larger school comparisons: AACSB accredited schools having undergraduate enrollments of at least 12,000 were compared to non-AACSB accredited schools having undergraduate enrollments of at least 12,000.
- 2) Middle sized school comparisons: AACSB accredited schools having undergraduate enrollments of 4,000 to 12,000 were compared to non-AACSB accredited schools having undergraduate enrollments of 4,000 to 12,000.
- 3) Smaller school comparisons: AACSB accredited schools having undergraduate enrollments less than 4,000 were compared to non-AACSB accredited schools having undergraduate enrollments less than 4,000.

## RESULTS

Table 2 shows results of independent-samples t-tests for each of the six success indicators evaluated in the full sample of 451 (all enrollment sizes). Levine's test proved insignificant for five of the six comparisons but was significant for the variable Regulation (REG). Therefore the t-statistic reported in Table 2 for REG was adjusted to reflect the assumption of unequal variances across groups. Our findings indicate statistically significant differences between AACSB accredited schools and non-AACSB accredited schools in all six success rates tested. Specifically, graduates from AACSB schools had higher pass rates on all four sections of the CPA exam (FAR, AUD, REG, and BEC). Furthermore, AACSB graduates had a significantly higher proportion of students passing all sections taken, and had a significantly lower proportion of students passing no sections taken. Table 3 presents means and standard deviations for these comparisons.

**Table 2: Independent-Samples T-Test (Overall Sample)**

VARIABLE TESTED		t-stat.	df	Sig. (2-tailed)	Mean Diff.	Std. Error
FAR	Equal var. assumed	5.13	449	.00*	7.43	1.45
AUD	Equal var. assumed	5.50	449	.00*	8.13	1.48
REG	Equal var. not assumed	2.71	449	.01*	4.28	1.58
BEC	Equal var. assumed	5.18	449	.00*	8.29	1.60
Passed All	Equal var. assumed	4.99	449	.00*	5.98	1.20
Passed None	Equal var. assumed	-6.76	449	.00*	-10.24	1.52

\*-statistically significant difference

**Table 3: Mean Pass Rates and Std. Devs. By Condition (Overall Comparison)**

	AACSB ACCREDITED (n=327)	NON-AACSB ACCREDITED (n=124)
FAR	Mean pass rate = 42.97 Std. dev. = 13.04	Mean pass rate = 35.53 Std. dev. = 15.42
AUD	Mean pass rate = 45.16 Std. dev. = 13.44	Mean pass rate = 37.03 Std. dev. = 15.44
REG	Mean pass rate = 42.27 Std. dev. = 12.34	Mean pass rate = 37.99 Std. dev. = 15.85
BEC	Mean pass rate = 42.10 Std. dev. = 15.34	Mean pass rate = 33.80 Std. dev. = 14.70
Passed All	Mean rate = 28.36 Std. dev. = 11.30	Mean rate = 22.38 Std. dev. = 11.52
Passed None	Mean rate = 40.80 Std. dev. = 13.80	Mean rate = 51.04 Std. dev. = 15.78

Within the overall sample, we find average success rates at AACSB schools to be approximately 6% to 8% higher on the individual sections of the exam in comparison to their non-AACSB counterparts. The overall sample also has a significantly larger percentage passing all sections of the exam and a smaller percentage failing all sections of the exam than candidates from non-AACSB schools.

Table 4 presents results based on a subsample including larger schools only (n=173) defined as schools having undergraduate enrollments of 12,000 or more students. Findings again show that significant differences exist between AACSB accredited schools and non-AACSB

accredited schools and in all six areas tested. More specifically graduates of AACSB accredited schools have significantly higher pass rates on all four sections of the CPA exam (FAR, AUD, REG, and BEC), have significantly larger pass rates of students passing all sections taken, and have significantly lower pass rates of students passing no sections taken. Levine's test was not significant in any of the six comparisons and the t-statistics reported in Table 4 reflect the assumption of equal variances between groups. Table 5 shows the mean pass rates and standard deviations for schools of 12,000 plus enrollments.



**Table 4: Independent-Samples T-Test (Larger School Comparisons: 12K+ Enrollments)**

VARIABLE TESTED		t-stat.	df	Sig. (2-tailed)	Mean Diff.	Std. Error
FAR	Equal var. assumed	3.11	171	.00*	9.78	3.15
AUD	Equal var. assumed	3.81	171	.00*	12.17	3.19
REG	Equal var. assumed	3.77	171	.01*	11.22	2.97
BEC	Equal var. assumed	2.67	171	.01*	9.60	3.59
Passed All	Equal var. assumed	3.27	171	.00*	9.10	2.79
Passed None	Equal var. assumed	-3.89	171	.00*	-13.07	3.36

\*statistically significant difference

**Table 5: Mean Pass Rates and Std. Devs. By Condition (Larger School Comparisons)**

	AACSB ACCREDITED (n=158)	NON-AACSB ACCREDITED (n=15)
FAR	Mean pass rate = 43.70 Std. dev. = 11.54	Mean pass rate = 33.91 Std. dev. = 12.99
AUD	Mean pass rate = 45.80 Std. dev. = 11.96	Mean pass rate = 33.63 Std. dev. = 10.15
REG	Mean pass rate = 42.64 Std. dev. = 10.79	Mean pass rate = 31.42 Std. dev. = 13.38
BEC	Mean pass rate = 43.49 Std. dev. = 13.40	Mean pass rate = 33.88 Std. dev. = 12.03
Passed All	Mean rate = 28.81 Std. dev. = 11.98	Mean rate = 19.71 Std. dev. = 11.98
Passed None	Mean rate = 39.93 Std. dev. = 12.44	Mean rate = 53.01 Std. dev. = 12.60

In the larger school comparisons (enrollments of 12,000 +), results again show candidates from AACSB schools demonstrated higher quality by scoring on average 9% to 12% higher on all four individual sections of the exam and having larger percentages passing all sections taken and smaller percentages failing all sections taken.

Table 6 presents results of independent-samples t-tests for schools having enrollments between 4,000 and 12,000 (middle sized school comparisons). Levine's test again is insignificant in all six comparisons. Accordingly, the t-statistics reported in Table 6 reflect the assumption of equal variances across groups in all six cases. Results are once

again significant for all six indicators tested, this time based on a sample including only schools having undergraduate enrollments between 4,000 and 12,000. Specifically, graduates from AACSB schools have significantly higher pass rates on all four sections of the CPA exam (FAR, AUD, REG, and BEC), have significantly larger proportions of students passing all sections taken, and have significantly lower proportions of students passing no sections taken than similar sized unaccredited schools. Table 7 shows mean success rates and standard deviations for each of these comparisons.

**Table 6: Independent-Samples T-Test (Middle Sized School Comparisons: 4K-12K Enrollments)**

VARIABLE TESTED		t-stat.	df	Sig. (2-tailed)	Mean Diff.	Std. Error
FAR	Equal var. assumed	3.33	181	.00*	8.39	2.52
AUD	Equal var. assumed	3.31	181	.00*	8.19	2.48
REG	Equal var. assumed	2.32	181	.02*	5.67	2.44
BEC	Equal var. assumed	2.79	181	.01*	7.86	2.82
Passed All	Equal var. assumed	2.95	181	.00*	6.09	2.06
Passed None	Equal var. assumed	-4.48	181	.00*	-11.84	2.64

\*-statistically significant difference

**Table 7: Mean Pass Rates and Std. Devs. By Condition (Middle Sized School Comparisons)**

	AACSB ACCREDITED (n=140)	NON-AACSB ACCREDITED (n=43)
FAR	Mean pass rate = 42.17 Std. dev. = 14.14	Mean pass rate = 33.77 Std. dev. = 15.48
AUD	Mean pass rate = 43.57 Std. dev. = 14.42	Mean pass rate = 35.38 Std. dev. = 13.45
REG	Mean pass rate = 42.11 Std. dev. = 13.56	Mean pass rate = 36.43 Std. dev. = 15.46
BEC	Mean pass rate = 40.24 Std. dev. = 16.90	Mean pass rate = 32.38 Std. dev. = 13.34
Passed All	Mean rate = 27.49 Std. dev. = 12.40	Mean rate = 21.39 Std. dev. = 9.77
Passed None	Mean rate = 41.77 Std. dev. = 14.65	Mean rate = 53.62 Std. dev. = 16.76

Table 8 presents results of independent-samples t-tests for a sample of schools including only smaller schools with enrollments under 4,000. Levine's test was insignificant for all six comparisons. Accordingly, the t-statistics reported in Table 8 reflect an assumption of equal variances across groups. Results are once again significant on four of the six variables tested. Graduates from AACSB schools with

enrollments less than 4,000 had significantly higher pass rates on AUD, BEC, had a significantly higher proportion of students passing all parts taken and had a significantly lower proportion of students passing no parts taken. Differences on the variables FAR and REG were statistically insignificant at  $P < .05$ . Table 9 presents mean pass rates and standard deviations for these comparisons.

**Table 8: Independent-Samples T-Test (Smaller School Comparisons: <4K Enrollments)**

VARIABLE TESTED		t-stat.	df	Sig. (2-tailed)	Mean Diff.	Std. Error
FAR	Equal var. assumed	1.65	93	.10	5.78	3.51
AUD	Equal var. assumed	2.80	93	.01*	10.51	3.75
REG	Equal var. assumed	0.15	93	.88	0.52	3.50
BEC	Equal var. assumed	2.40	93	.02*	8.75	3.65
Passed All	Equal var. assumed	2.38	93	.02*	6.47	2.72
Passed None	Equal var. assumed	-2.26	93	.03*	-8.05	3.56

\*-statistically significant difference

**Table 9: Mean Pass Rates and Std. Devs. By Condition (Smaller School Comparisons)**

	AACSB ACCREDITED (n=29)	NON-AACSB ACCREDITED (n=66)
FAR	Mean pass rate = 42.83 Std. dev. = 15.34	Mean pass rate = 37.05 Std. dev. = 15.92
AUD	Mean pass rate = 49.39 Std. dev. = 15.38	Mean pass rate = 38.88 Std. dev. = 17.44
REG	Mean pass rate = 41.03 Std. dev. = 14.35	Mean pass rate = 40.50 Std. dev. = 16.27
BEC	Mean pass rate = 43.47 Std. dev. = 16.91	Mean pass rate = 34.72 Std. dev. = 16.14
Passed All	Mean rate = 30.10 Std. dev. = 11.76	Mean rate = 23.62 Std. dev. = 12.44
Passed None	Mean rate = 40.87 Std. dev. = 16.61	Mean rate = 48.92 Std. dev. = 15.68

In schools with enrollments less than 4,000, within the context of the new computerized CPA exam, candidates graduating from AACSB schools had 10% higher pass rates on AUD and 8% higher on BEC and also had a significantly higher proportions of graduates passing all parts taken and significantly lower proportions of graduates failing all parts taken. Statistically significant differences were not found on the variables FAR and REG.

In all four sample comparisons (overall sample of 451, large schools only, middle sized schools only, smaller schools only) both hypotheses 1 and 2 were confirmed. Average pass rates of AACSB business school graduates were higher on the 2006 CPA examination than of non-AACSB business school graduates. Failure rates of AACSB business school graduates were lower than failure rates of non-AACSB business school graduates.

## DISCUSSION AND CONCLUSIONS

Our results indicate a systematic association between higher pass rates on the newly computerized uniform CPA exam and AACSB business school accreditation. Results are robust in comparisons including only schools having approximately similar enrollments---large, medium, and

small. If success rates on the new computerized uniform CPA exam are a valid measure of accounting program quality, results suggest accounting graduates from AACSB accredited institutions in general evidence higher quality than accounting graduates from non-AACSB accredited institutions. Results are consistent with the arguments made by proponents of AACSB accreditation who contend AACSB accreditation is generally positively associated with higher quality business school education and business school graduates. Our evidence is not consistent with critics of AACSB business school accreditation who assert that overall effects of AACSB accreditation may be detrimental to business school quality.

Keep in mind results from this study do not permit causal inference regarding the associations discovered. One cannot logically infer (within the research design employed) whether AACSB accreditation causes higher CPA exam success rates. Many other interpretations are equally possible. For example, selection bias of students (i.e. brighter students self-select into AACSB accredited schools and/or AACSB accredited programs select only brighter students for their programs) may account for our result. Other confounds (number of accounting classes completed

before taking the exam, percentage of graduates taking the CPA exam, percentage of graduates taking a formal CPA exam review course before sitting for the exam, etc.) which systematically differ across the AACSB group and the non-AACSB group might also account for the discovered differences in CPA exam performances.

Furthermore it is useful to keep in mind that our raw data included numerous exceptions to the averages. Some non-AACSB accredited schools had very high CPA exam success rates and some AACSB accredited business schools had very low CPA exam success rates. Our findings show only that average success rates at AACSB accredited business schools are higher than average success rates at non-AACSB accredited schools within the context of the new computer based CPA exam.

As mentioned above, Boone, Legoria, Seifert, & Stammerjohan, (2006) in an earlier study attempted to identify and eliminate the systematic effects of other variables which might also affect CPA exam performance before comparing AACSB to non-AACSB CPA graduates. Eliminated variables included academic aptitude of entering students (selectivity), hours of accounting and business coursework completed before taking the exam, faculty research productivity, institutional resources, and similar items. Boone et al. reported, that after removing the effects of these other variables, at best a weak association remained between program-level CPA exam pass rates (using the old paper based CPA exam) and AACSB accreditation. To us, their result is not particularly surprising since AACSB accreditation standards include and are inextricably linked with many of the factors they eliminated (e.g. aptitude of entering students, hours of accounting and business completed, faculty research productivity, institutional resources). AACSB quality standards address most of these very items. To remove them from the meaning of accreditation is to leave behind an empty shell. In the present study we did not try to remove other variables such as aptitude of entering students, hours of accounting and business taken, use of CPA exam review courses, and faculty research productivity, because of the inherent theoretical difficulties of separating them from required participant standards at AACSB schools, and also because of the practical difficulty in gathering such data for our large sample of 451. It remains an interesting possibility that higher success rates achieved at AACSB business schools on the CPA exam may be nothing more than starting out with students of higher aptitudes.

In conclusion, the goal of this research has been to discover whether an observable systematic relationship between AACSB accreditation and CPA exam success rates exists within the context of the newly computerized CPA exam. This has been accomplished. Graduates of AACSB accredited institutions in general score higher on the CPA exam than their non-accredited counterparts. This relationship exists in subsamples of accredited and

unaccredited institutions having similarly sized undergraduate enrollments.

Data reported here convey not only statistically significant relationships between AACSB accreditation and CPA exam success rates, but also provide a glimpse into the surprisingly large degree of these differences. Pass rates averaging 6 – 13% higher at AACSB schools, when pass rates overall are only 20-25% on each section, are huge in proportionate terms. The prestige of AACSB accreditation due to its clear association with higher CPA exam success rates is self-evident. Accounting programs desiring to remain regionally or nationally competitive may increasingly find AACSB accreditation necessary for their own branding and reputation purposes even if the mechanism(s) behind the higher pass rates remain unclear. Disparities in CPA exam performance systematically related to accreditation status, once they become widely known will no doubt affect students' choices of universities to attend. They will also affect choices made by funding agencies to provide supplemental funds to certain institutions above others, and affect choices made by recruiters about where to recruit. The accredited or unaccredited status of an applicant's undergraduate degree is already a factor in the admission decisions at some graduate schools in business. It is logical to anticipate institutions will increasingly seek AACSB accreditation for their undergraduate programs in order to enhance their reputations.

#### SUGGESTIONS FOR FURTHER RESEARCH

Our study has focused on a subset of all business school graduates, namely accounting graduates who sit for the CPA exam. The superior performance of AACSB accredited accounting graduates on the new CPA exam may not generalize to the performances of management, marketing, and other business school graduates as it relates to their professional responsibilities. Measuring the relative quality of non-accounting AACSB business school graduates in the fields of marketing, management, and finance would be interesting and useful research.

Devising tests that would clarify the mechanism(s) behind the higher performance of AACSB business school graduates on the CPA exam would be useful. In this regard (assuming data could be obtained), a logistic model fitting a dependent variable, "AACSB graduates' CPA exam success" and "Non-AACSB graduates' CPA exam success" to a variety of covariates (e.g. aptitude of entering students, accounting and business courses completed before sitting for the exam, percentage of a programs' graduates taking the exam, use of CPA exam review courses, highest degree obtained and research productivity of faculty, use of assessment for improvement, etc.) would be informative.

Other measures of the quality in accounting graduates might include measures of accounting and business knowledge tested on the Certified Management Accounting exam (CMA), and the Certified Fraud Examiner (CFA) exam, and the major field tests in business (MFT) as

measured by the Educational Testing Service (ETS). Success levels on these measures could be compared between AACSB and non-AACSB groups. ETS data would also provide insights into the fuller relationships between AACSB accreditation and quality of business graduates more generally since it includes knowledge appropriate to many business majors.

Finally, it serves to keep in mind that the very smallest four year colleges and universities often with enrollments less than 2,000 rarely have 20 students sitting for the CPA exam, and thus were not well represented in our analyses. Presently very little is known about the effects of AACSB accreditation on these very smallest of schools—a group that is increasingly seeking to become AACSB accredited. Therefore, a study on the differential effects of AACSB accreditation on CPA exam performance at these very small schools might be revealing. Our results already show some weakening in the degree of the superior performance of AACSB accredited institutions at smaller schools (i.e. AACSB graduates from schools with less than 4,000 students did not perform statistically higher on Financial Accounting and Reporting (FAR) and Regulation (REG)). Plausible reasons for further breakdowns in these systematic associations at even smaller schools can be easily imagined. By investigating very smallest of institutions, some insights into the limits (if any) of the benefits of AACSB accreditation may become better understood.

In conclusion, our research like most research has been a systematic inquiry into a subject to discover facts. The research presented in this paper was intended to provide a partial understanding of the observable association between AACSB accreditation and quality in accounting education within the context of success on the newly revised CPA exam. Results reported here, while supportive of accreditation being positively associated with quality in accounting education, may not generalize well to other business graduates and other majors. Further, the specific nature of the causal connections between AACSB accreditation and CPA exam success are poorly understood.

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**John D. Morgan** is associate professor of accounting at Winona State University. He received his Ph.D. in accounting from the University of Nebraska-Lincoln and is a CPA and CMA. His research interests include the accounting measurements of intellectual capital, behavioral research in accounting, and accounting pedagogy. He has journal articles published in the *Journal of Business and Leadership*, *Clarion Business and Economic Review*, *Regional Business Review*, and *Learning and Teaching in Higher Education—Gulf Perspectives*.

## Morgan et al.: An Investigation of The Relationship Between AACSB Business School

**J. Lawrence Bergin** is a professor of accounting at Winona State University. He earned his BS and MBA degrees from Northeastern University. He has published articles on accounting education and marketing theory.

**Larry Sallee** is a professor of accounting at Winona State University. He received his Ph.D. in accounting from U. S. International University, is a CPA and a CMA. His primary research interest is accounting pedagogy.