Business Education & Accreditation

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DOES BENCHMARKING HINDER MISSION DIVERSITY OF AACSB-ACCREDITED SCHOOLS: EVIDENCE FROM THE U.S. AND EUROPE?

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ABSTRACT

Since 1991, business schools in the US and Europe that are affiliated with AACSB have been urged to employ a mission-driven philosophy and approach into their programs. An annual Business School Questionnaire (BSQ) is conducted and shared among members to provide characteristics related to their school and its program, including what priorities are emphasized with regards to both their mission's general (teaching, research, and service) and scholarly (discipline-based, contribution-to-practice, or pedagogy) orientations. The BSQ results are encouraged to be used for benchmarking. This study conducted an analysis of the self-categorizations to determine the extent of diversity among school mission orientation. The results indicate more conformity than diversity. The authors attribute the lack of variance to the established practice of benchmarking.

JEL: I20, I21

KEYWORDS: Accreditation, Mission, Objectives, Benchmarking, General Orientation, Scholarly Orientation, Conformity

INTRODUCTION

Business education has been impacted by globalization more than any other discipline in higher education. Geographic partitions no longer exist as they once did; the entire planet is now a wide-open field for recruiting the best student and faculty candidates. Due to substantial decreases in financial support from traditional funding sources, business schools are forced to rely more on alternative revenue sources, such as private funding and sponsorships. This imperative to reconfigure financial resources comes when schools are also attempting to improve their programs' academic quality and competitive offerings. Consequently, to increase market competitiveness, a growing number of business schools are seeking professional recognition and affirmation through accreditation from well-established and highly reputed agencies, such as the Association to Advance Collegiate Schools of Business (AACSB), the European Quality Improvement System (EQUIS), and the Association of MBAs (AMBA).

Accreditation is defined by the Council for Higher Education Accreditation as, "a process of external quality review created and used by higher education to scrutinize colleges, universities and programs for quality assurance and quality improvement," (Hunt, 2015, p. 23). Founded in 1916, the Association to Advance Collegiate Schools of Business International (AACSB) is the oldest accrediting agency for business schools. Its stated mission is to, "foster engagement, accelerate innovation, and amplify impact in business education" (www.aascb.edu). AACSB International accreditation is widely regarded as the highest level of accreditation for business schools and has been described as, "a gold standard that is coveted by high quality business schools around the world," (Shiffler and Bowen, 2015). One substantive

benefit of being accredited by AACSB is access to highly desirable benchmarking information of other business schools; especially those identified as either peers, aspirants, or competitors. AACSB provides this information through its *Data Direct* division, described as, "the most comprehensive database on business schools in the world" (www.aacsb.edu). *Data Direct* conducts an annual survey of its members, the Business School Questionnaire (BSQ). It then, "grants access to data on business schools' institutional characteristics, budgets, faculty, students, and salaries, among others, for schools that participate in the questionnaires," (www. aacsb.edu). Completing the BSQ is mandatory for member schools. The results provide a range of data points of school characteristics especially designed for benchmarking purposes (http://aacsbblogs.typepad.com/dataandresearch/aacsb-business-school-questionnaire-bsq).

Benchmarking allows a school to ensure its mission is relevant, competitive, and fulfills the needs and desires of the market it serves. It is essential conduct for any business school having (or seeking) accreditation to validate their program, improve their standing in the academic community, or to be better able to recruit high-caliber faculty and students. Farquhar (1998) reports that when universities engage in true benchmarking, they do so by independently looking for (and at) other organizations believed to do one or more processes better than the seeker does; for example, these processes could include student recruiting, degree plan offerings, or faculty management. Schools then study what the benchmarked schools do differently and how they achieve their results. They then attempt to introduce newly learned measures that are considered to foster greater success or to remove existing measures determined, post-benchmark analysis, to be disadvantageous.

AACSB asserts that, "a quality business school has a clear mission, acts on that mission, translates that mission into expected outcomes, and develops strategies for achieving those outcomes" (www.aacsb.edu). These standards address three critical areas of a business school's operations: mission and strategy; scholarship and intellectual contributions; and financial strategies. The school's mission, its program and orientation (both generally and scholarly), expected outcomes, and strategies should clearly define the school's focus on educational activities; the type of intellectual contributions produced by faculty, and other expected faculty engagement. AACSB elevated its expectations of current and prospective member schools in 2013 to demonstrate and document specific outcomes in the following areas: engagement, innovation, and impact. These new levels are drive by the increased level of accountability and oversight institutions of higher education face from internal and external stakeholders (e.g., current and prospective students, parents; alumni; employers; governing agencies; donors; funding bodies; etc.). This could, and should, lead to unique missions across member institutions.

In the United States, business schools are attached to universities. In Europe, stand-alone business schools have been and still are more common. Irrespective of the organizational arrangement, the school's mission, expected outcomes, and strategies should clearly define the school's focus on educational activities (e.g., range of degree and non-degree programs offered; the constituents these programs are intended to serve); type of intellectual contributions produced by faculty and other expected faculty engagement (e.g., civic, community, professional, etc.). The school should also have clearly defined its future strategies to maintain its resource needs, assign responsibilities to appropriate parties, and set a timeframe for the implementation of actions that support the mission. The school concurrently systematically evaluates and documents its progress toward mission fulfillment.

Conforming to this established framework gives schools the opportunity to create and maintain a strong environment for their students, faculty, and stakeholders. Business schools seeking accreditation would naturally be expected to benchmark schools that are already accredited. Once accredited, member business schools are required to go through a continuous improvement review process every five years. This provides yet another compelling reason for business schools to engage

in a continuous benchmarking of accredited peer, aspirant, and competitor schools via *Data Direct* supplied information to ensure they are engaging in accepted practices.

AACSB-accredited business schools present a comprehensive and rational choice for the focus of our study. AACSB International has had a presence in the historical development of collegiate business education for over a century. Accredited schools go through a continuous improvement review every five years. Current accreditation standards were voted on and approved in the spring of 2013 at the International Conference and Annual Meeting (ICAM). The 2013 AACSB International business accreditation standards preserve the long-standing foundation of the AACSB's mission-driven accreditation standards and processes; evidence of overall academic high quality and continuous improvement assessed through self-assessment and peer-review process and introduce key extensions into accreditation process. This study is also the first, its authors believe, that concentrates on what general and scholarly areas premier business schools are emphasizing in their mission and program, based exclusively on data provided directly by the schools to AACSB. We believe the agency's desired diversity of the missions of its members is being greatly impeded due to the tradition and habit of these schools benchmarking each other.

Despite having many category options available to describe the prioritization of their mission's general and scholarly orientations, too many schools appear to be simply mirroring each other, thus creating a business schools in the twenty-first century more geared to conformity than diversity. Initially, the paper gives an overview of the global accreditation environment for business schools. A review of relevant existing research and the propositions put forth by this work then follows. The next section will address the research design and the results of the conducted analyses. Finally, the research's limitations, future opportunities for supplemental research, and the authors' conclusions are shared. We hope that this work will generate needed dialogue among colleagues and help stimulate needed research into this very important area.

The Global Accreditation Environment for Business Schools

Founded in 1916, the Association to Advance Collegiate Schools of Business International (AACSB) is the oldest accrediting agency for business schools. Their published mission is: "to foster engagement, accelerate innovation, and amplify impact in business education." Their vision is the "transforming" of business education. The agency's website (www.aacsb.edu) purports it to be a worldwide association with over 1,500 member organizations in more than 90 countries and territories and that 761 business schools in 52 countries and territories have been accredited by them. AACSB International accreditation is widely regarded as the highest level of accreditation for business schools and has been described as, "a gold standard that is coveted by high quality business schools around the world," (Shiffler and Bowen, 2015).

In Europe, an emerging counterpart to AACSB International is the European Quality Improvement System (EQUIS), begun in 1997 by the European Foundation for Management Development (EFMD). Whereas AACSB stresses academic quality and continuous improvement, EQUIS provides market information, an instrument for benchmarking and comparison, quality improvement and to award the European Quality Label (Proitz, Stensaker, and Harvey, 2004). Another major European organization for accrediting management education is the Association of MBAs (AMBA). At the very beginning accreditation was not the main goal of AMBA. This was added in the mid-1980's and has been refined and expanded over the years. Simply put, the market for a "label" of academic quality and continuous improvement in management education exist on both sides of the Atlantic.

According to the website, www.mba.today, as of January 2017, only 74 business schools in the world have received accreditation by these three most sought-after international accreditation entities for business education (AACSB, AMBA and EQUIS) (www.mba.today/guide/triple-accreditation-

business-schools). The majority, 68.5%, of schools with this status are based in Europe. No business school based in the US has this status, despite that 68.5 of all AACSB-accredited schools are based there. One of the reasons given for this is that most US institutions are willing to admit students into their Masters programs with only an undergraduate degree and many of those enrolled bring very little direct work experience with them into the program. The AMBA, in contrast, considers the MBA degree as a postgraduate degree and one of its requirements is that students must have at least three years of work experience, with the program cohort averaging five years of work experience. Additionally, the AACSB accreditation body is widely recognized in North America and, perhaps because of this, US-based institutions are willing to pursue the time, energy, and expense of obtaining a second, let alone a third, accreditation.

It is with these thoughts in mind that this study examines the general and scholarship orientations of accredited business school missions among AACSB business schools located in the US and Europe. Systematic quality assurance in both national and international contexts raises the very important question concerning at what point is it acceptable for business schools to sacrifice institutional diversity and development and risk becoming more standardized. The increasing conformity and standardization of higher business education implies a trade-off between the need to establish certain threshold levels of quality, as a response to growing globalization and deregulation of the sector especially in many fast-growing international markets across the Atlantic, and the wish to preserve the uniqueness and diversity of higher education in business (Proitz, Stensaker, and Harvey, 2004).

LITERATURE REVIEW

Farquhar (1998) provides a superb overview of higher education benchmarking in the United States and Canada, defining it as being, "related to such other 'customer-oriented' contemporary approaches to better management," adding that it, "can be viewed as the end of a procedural continuum which begins with management information and progresses through performance indicators….and best practices," (pp. 32-33). Shiffler and Bowen (2015) stress the cruciality of having a thorough and well-research list of peers, aspirants, and competitors to any business school in the accreditation process, initial or review. They encourage the use of AACSB's *Data Direct* service for school benchmarking, suggesting that, "a very rough first cut would be to screen based on the categories of general orientation and scholarly orientation," (p. 141).

Ruhul Amin and Amin (2003) share the benefits to be gained in higher education by benchmarking best practices of learning assessments. Likewise, Tasopoulou and Tsiotras (2017) find that benchmarking can improve academic excellence by means of comparison and assessment. Brink and Smith (2012) provides an extremely insightful comparison of the three major accrediting agencies of US-based business programs AACSB, ACBSP, and IACBE (International Assembly of Collegiate Business Education); highlighting the differentiating appeal factors of each for business schools. Kozmützky and Krücken (2015) suggest universities attempt to differentiate themselves from other competing universities while simultaneously promoting commonly held institutional specifics; i.e., we're different even though we're the same. Husted's (1998) account of a self-described 'liberal arts' college candidacy for AACSB accreditation is a prime example of the agency's perspective regarding mission diversity.

Husted explains that the AACSB, "wanted to know what the School of Business and Economics did that was any different than any other college with a general education requirement," (p. 43). Hunt's (2015) questioning of AACSB's claims of superiority among accrediting agencies with regards to the value to schools, student job placement, faculty recruitment, and teaching quality raises possible concerns for non-US schools contemplating affiliation. Along a similar vein, Stepanovich, Mueller,

and Benson (2014) discuss the possible unintended negative consequences that can accompany AACSB accreditation by applying Deming's philosophy.

Nicholls, Hair, Ragland, and Schimmel (2014) point out that the Ethics FAQ (Frequently Asked Questions) section of AACSB states, "The focus of current higher education is turning to learning, not teaching. A focus on what students have learned…is displacing a focus on how a subject is taught" (p. 129). A major shift in accreditation standards such as this will undoubtedly have schools actively benchmarking PAC schools to learn how other institutions are responding to these changes; especially as they come up for their five-year accreditation review. Xie and Steiner (2013) report on the challenges faced within management education in implementing changes, suggesting that a collaborative approach between business schools and businesses could help improve this situation.

Lin (2015) observes that the "tremendous growth" in the number of schools accredited by AACSB was, "due to the change to a mission-driven accrediting policy." (p. 25). Miles, et al (2014), provides a very insightful and in-depth overview of AACSB's 2013 standards revision and its potential impact in the current business environment. AACSB's 1991 standards called for business schools to develop an individual mission and meaningful goals in the pursuit of this mission. Schools were required to measure accomplishments of these goals through outcome assessments, therefore providing a foundation for continuous improvement. Outcomes assessment include input of school's stakeholders (e.g., faculty, students, employers, etc.), thus it created a much-needed bridge between the business community and business schools. Medenica's (2016) work discusses how universities could benefit by implementing a structural framework for organizational development as is practiced by businesses.

However, Henninger (1998) finds "only modest changes in faculty selection and work resulting" from adoption of 1991 AACSB standards. Similarly, Jantzen (2000) determines that "the adoption of "mission-related" standards, by itself, has not resulted in change in either the number or reputation of schools being accredited." Davis, Ruhe, Lee, and Rajadhyaskal (2007) point out that AACSB member schools are expected to articulate their school's performance with its mission. The relevancy and benefit of the post-1991 mission-driven accreditation on a business school has also been well covered by academic research. Julian and Ofro-Dankwa (2006) proclaim the, "core process characteristics of accreditation" are not well suited for today's business environment (p. 225). Along those same lines, Miller and Nouri (2015) found having AACSB accounting accreditation had absolutely no impact on the pass rate of its students on the Certified Public Accountant (CPA) exam.

Roberts, Johnson, and Groesbeck's study (2004) revealed that although accreditation is seen to provide benefit to the school and its students, there was little benefit perceived by the faculty for going through the accreditation process. Palmer and Short's (2008) study looked at similarities and difference in the content of mission statements of 408 US AACSB accredited business schools. It finds a considerable variance of organizational mission statements. Their analysis shows business school missions lack comprehensiveness; however, they also detect pockets of commonality among comparable schools. They find that significant difference in mission content and performance are a function of configurations of similar schools based on structural characteristics.

Baker and Balmer (1997) suggest that the missions of institutes of higher education must reflect generally accepted criteria for high quality education, and therefore, follow industry-wide guidelines. Bisoux (2003) echoes these sentiments and states that in higher education the quest for legitimacy has left business schools stuck in a "sea of sameness." AACSB-accredited institutions have great variability in developing their missions to differentiate themselves. However, the presence of conformity pressures influences mission statements content. Therefore, alignment arises between business schools when they define organizational purpose (Glynn and Abzung, 2002). Davis and Glaister (1997) find for institutions of higher education in the United Kingdom, "the mission statement

is not based on a feeling of need, but to conform to the requirements of external bodies" (p. 596). Palmer and Short (2008) report that they find considerable variance between mission statements of the US colleges of business.

The quality of higher education is one of the strongest reform issues in Europe (Sporn, 1999). Previous research into quality-related trends in European higher education is extensive (e.g., Brennan and Shah, 2000; Jeliazkova and Westerheijden, 2002; Stensaker, 2000; Yorke, 2000). It examined the subject from internal and external perspective. Internally, teaching emerged as one of the most prominent evaluation subjects. Moreover, Antunes and Thomas (2007) point out the key features of European schools and their competitive advantages over their US counterparts. These include a strong international mindset; flexibility and innovation, and adoption of alternative delivery technologies much faster than U.S.-based business schools. They proclaim European-based institutions of higher education feature stronger corporate ties and partnerships (extremely successfully translated to the classroom) and a very strong knowledge development tradition.

Engwall (2007) presents an overview of management business education in the US and Europe over the past century. He concludes that management education has become a growing industry on a global scale. Over the years, competition, reputation, and benchmarking on the global scale elevated the importance of accreditation and assessment. Furthermore, he predicts that market forces will continue make a greater impact on education in general, and on management education in particular. Regardless of geographical location business schools face the same market forces such as globalization; fiscal, financial management, and governance concerns; loss of public confidence; changing demographics and new workplace requirements; rapid advances in technology; quality assurance and management issues; lifelong learning and collaborative research, and a host of other societal challenges that have forced business education to undertake a critical review of their mission and societal impact.

DATA AND METHODOLOGY

The 1991 AACSB standards called for each business school to develop its own unique mission statement. Palmer and Short's (2008) study utilized an eight-item topology (Pearce and David, 1987) created to analyze and measure different components in the mission statements of Fortune 500 companies, not institutions of higher education. As Fortune 500 organizations operate differently than colleges of business administration do, the authors of this study elected not to utilize Pearce and David's (1987) topology. Instead, data on how schools categorize both the general and scholarship orientations of their missions was obtained from DataDirect – the most comprehensive online database, exclusively dedicated to business schools worldwide and maintained by AACSB International and from accrediting agency websites. AACSB member business schools are asked to complete Business School Questionnaires (BSQ) on an annual, basis.

The initial investigation involved collectively coding and uploading data from 63 different variables (i.e., the school, undergraduate and graduate students, and faculty) across 541 separate schools. This led to the creation of a single spreadsheet containing 34,083 individual cells. Initial data analysis implied not every AACSB-affiliated business school had fully completed its transition to 2013 standards. Therefore, following the precedent set by McKenna, Cotton, & Auken (1995) and Palmer and Short (2008), it was decided to limit inclusion in the study to only those schools who supplied general and scholarly orientation codes.

The number of respondent schools included in this study is 337; 285 from the United States and 52 from Europe. Two key characteristics of respondent schools - whether they are publicly or privately controlled and the highest degree offered by the program – are provided in Table 1 below. The majority of responding AACSB-accredited business schools from both regions are publicly controlled (74.4% in the

United States and 61.5% in Europe). A conspicuous difference is found in the highest level of degree offered: 86.5% of respondent European schools offer a doctorate degree, while only 29.1% of US schools do. Data Direct provides coding options in the BSQ for respondent schools to report the level of priority emphasis placed on their program's general orientation and scholarly orientation, from high to low. General orientation codes are used to classify general orientation of a program; i.e., teaching, intellectual contribution (research), and service.

Table 1: Respondent School Characteristics

	US-Based Business Schools		European-Based Business Schools	
CONTROL	**Number of Schools**	**Percentage of Schools**	**Number of Schools**	**Percentage of Schools**
Public	212	74.4	32	61.5
Private	73	25.6	20	38.5
TOTAL	**285**	**100**	**52**	**100**
HIGHEST DEGREE				
Doctorate	83	29.1	45	86.5
Masters	181	63.5	7	13.5
Bachelors	21	7.4	0	0
TOTAL	**285**	**100**	**52**	**100**

This table shows whether respondent schools in the US and Europe are publicly or privately controlled, as well as the highest degree offered.

There are seven different combinations available (BPA-1 to BPA-7) for schools to use in categorizing the level of emphasis each component receives. Table 2 below provides A key to the BPA coding options used by accredited schools in the BSQ.

Table 2: General Orientation Emphasis Codes Used in Data Direct's BSQ

Code	**High Emphasis**	**Medium Emphasis**	**Low Emphasis**
BPA-1	Teaching	Research	Service
BPA-2	Research	Teaching	Service
BPA-3	Teaching	Service	Research
BPA-4	Research	Service	Teaching
BPA-5	Teaching + Research (equally emphasized)		Service
BPA-6	Teaching	Research + Service (equally emphasized)	
BPA-7	Teaching + Research + Service (equally emphasized)		

This table provides a key to each of the seven categorical options provided by AACSB's Data Direct for business schools to self-report the general orientation of their mission.

Scholarship orientation codes are used to classify the priority emphasis placed on the intellectual contributions made by the school faculty. scholarship orientation as "BPB." Thirteen (13) different options are given to schools to choose from to most accurately describe the scholarship orientation (discipline-based, contributions to practice, or learning & pedagogy) of their mission. The coding options in the BSQ to categorize scholarship orientation in the BSQ are in Table 3 below.

Once the spreadsheet of reporting schools was created, a frequency analysis of both priority and emphasis categories was conducted to ascertain how member institutions self-categorized the emphasis of general and scholarship orientations of their mission.

Table 3: Scholarship Orientation Emphasis Codes Used in Data Direct's BSQ

Code	High Emphasis	Medium Emphasis	Low Emphasis
BPB-1	Discipline-Based	Contribution-to-Practice	Learning & Pedagogy
BPB-2	Contribution-to-Practice	Learning & Pedagogy	Discipline-Based
BPB-3	Learning & Pedagogy	Discipline-Based	Contribution-to-Practice
BPB-4	Discipline-Based	Learning & Pedagogy	Contribution-to-Practice
BPB-5	Learning & Pedagogy	Contribution-to-Practice	Discipline-Based
BPB-6	Contribution-to-Practice	Discipline-Based	Learning & Pedagogy
BPB-7	Discipline-Based AND Contribution-to-Practice equally		Learning & Pedagogy
BPB-8	Contribution-to-Practice AND Learning & Pedagogy equally		Discipline-Based
BPB-9	Discipline-Based AND Learning & Pedagogy equally		Contribution-to-Practice
BPB-10	Learning & Pedagogy	Discipline-Based AND Contribution-to-Practice equally	
BPB-11	Discipline-Based	Contribution-to-Practice AND Learning & Pedagogy equally	
BPB-12	Contribution-to-Practice	Discipline-Based AND Learning & Pedagogy equally	
BPB-13	Discipline-Based AND Contribution-to-Practice AND Learning & Pedagogy equally		

This table provides a key to each of the thirteen categorical options provided by AACSB's Data Direct for business schools to self-report the scholarship orientation of their mission.

RESULTS AND DISCUSSION

General Orientation (BPA)

The frequency analysis of the data supplied by accredited institutions reveals a surprising trend among business schools in the United States. The majority of respondent schools, 125 out of 285 (43.9%) that supplied a response regarding how they categorize the priority of their mission's general orientation (BPA) opted for BPA-1 (teaching – research – service), wherein teaching receives the highest emphasis, research a medium amount of emphasis, and service received the least. The second most selected BPA code by U.S. schools was BPA-5 (teaching and research – service), with 31.9% of respondents. Under BPA-5, teaching and research receive an equal amount of emphasis, with service, again, receiving the least emphasis. BPA-2 (Research – Teaching – Service) rounds out the top three with 16.1% of schools selecting this option. These three coding options, out of seven, represent over 91% of all participating business schools based in the United States. Table 4 below shows the number and percentage of the three most chosen categories of general orientation.

An even larger percentage of respondent European schools (98.1%) also selected just three of the seven coding options as being most reflective of their mission: BPA-7 (40.4%), BPA-5 (38.5%), and BPA-2 (19.2%). BPA-7 represents a program where teaching, research, and service receive equal emphasis. These rankings are shown in Table 5 below. The most striking difference between U.S. and European business schools is that where the US-based schools clearly put teaching above all other components of their mission, European schools see business education as requiring a balance of all three elements, not just teaching. In fact, BPA-1, where teaching alone receives the highest emphasis among US. Schools, was chosen by only one European school. The top three orientations of all respondent schools, regardless of region, are in Table 6. As with the individual region analysis, collectively, three options represent almost ninety percent (86.9%) of how AACSB accredited business schools prioritize the general orientation of their program. It is important to note that three choices (out of seven coding options given) represent over ninety percent of both reporting US schools and reporting European schools. This lack of variance in the general orientation of business school missions seems to indicate that Palmer and Short's (2008, p. 461) conclusion that "diversity" exists in business school missions is limited to statements and does not extend to orientations or priorities.

Table 4: Most Commonly Reported General Orientation Emphasis Codes Among US-Based AACSB-Accredited Business Schools

US-Based AACSB Schools Reported General Orientation	# Schools Reporting	% Schools Reporting
BPA-1	125/285	43.9
BPA-5	91//285	31.9
BPA-2	46/285	16.1
TOTALS	262/285	**91.9%**

This table shows the three most commonly reported categories of what is emphasized in the general orientation of the program mission of US-based AACSB-accredited schools that participated in the Data Direct Business School Questionnaire, along with the number and percentage of reporting schools.

Table 5: Most Commonly Reported General Orientation Emphasis Codes among European-based AACSB-accredited Business Schools

European-Based AACSB Schools Reported General Orientation	# Schools Reporting	% Schools Reporting
BPA-7	21/52	40.4
BPA-5	20/52	38.5
BPA-2	10/52	19.2
TOTALS	**51/52**	**98.1%**

This table shows the three most commonly reported categories of what is emphasized in the general orientation of the program mission of European-based AACSB-accredited schools that participated in the Data Direct Business School Questionnaire, along with the number and percentage of reporting schools.

Table 6: Most Commonly Reported General Orientation Emphasis Codes Among Both US- and European-Based AACSB-Accredited Business Schools

All Reporting AACSB Schools	# Schools Reporting	% Schools Reporting
BPA-1	126/337	37.4
BPA-5	111/337	33.0
BPA-2	56/337	16.6
TOTALS	**293/337**	**86.9%**

This table shows the three most commonly reported categories of what is emphasized in the general orientation of the program mission of both US and European-based AACSB-accredited schools, that participated in the Data Direct Business School Questionnaire, along with the number and percentage of reporting schools.

Scholarship Orientation (BPB)

The frequency analyses of the emphasis on the intellectual contribution (scholarship orientation) alignment with the school's mission of AACSB accredited schools in the United States and Europe resulted in some enlightening results. The vast majority (58.2%) of schools in the U.S. reported the first option, BPB-1, wherein each category is emphasized at a different level from the others: Discipline-based (D-B) gets the highest emphasis, Contribution to Practice (CTP) receives medium emphasis, and Learning & Pedagogy (L&P) qualifies for the least amount of emphasis). BPB-7 is a distant second (13%) where D-B and CTP are given equal emphasis and L&P places third. BPB-2 (8.8%) is the third most commonly emphasized scholarship orientation among US schools, as shown in Table 7 below. Collectively, these three options – out of thirteen – represent eighty percent (80%) of all reporting US business schools.

Table 7: Most Commonly Reported Scholarship Orientation Emphasis Codes Among US-Based AACSB-Accredited Business Schools

US-Based AACSB Schools Reported General Orientation	# Schools Reporting	% Schools Reporting
BPB-1	166/285	58.2
BPB-7	37//285	13.0
BPB-2	25/285	8.8
TOTALS	**228/285**	**80.0%**

This table shows the three most commonly reported of thirteen options concerning what is emphasized in the scholarly orientation of the program mission of US-based AACSB-accredited schools that participated in the Data Direct Business School Questionnaire, along with the number and percentage of reporting schools.

Reported scholarship orientation in European schools of business exhibit more variance among the options provided. Although BPB-1 was the most reported coding option, slightly less than one-third (30.8%) of respondent schools aligned with it (compared to almost twice that percent for the top choice of US-based schools). Also, as with US schools, BPB-2 was the second most commonly chosen, but in Europe, it was a close second with 26.9% of the schools selecting it, compared to 13% of schools in the US The third most popular codes for European schools was BPB-11 (19.2%), which was not chosen by a single US-based school. The results are given in Table 8 below. Like the United States institutions of higher education, the European missions seem to value research focused on theory first, practice second.

Table 8: Most Commonly Reported Scholarship Orientation Emphasis Codes Among European-Based AACSB-Accredited Business Schools

European-Based AACSB Schools Reported General Orientation	# Schools Reporting	% Schools Reporting
BPB-1	16/52	30.8
BPB-7	14/52	26.9
BPB-11	10/52	19.2
TOTALS	**40/52**	**76.9%**

This table shows the three most commonly reported categories of what is emphasized in the scholarly orientation of the program mission of European-based AACSB-accredited schools that participated in the Data Direct Business School Questionnaire, along with the number and percentage of reporting schools.

Combining both regions' reporting of scholarship orientation results (Table 9 below) in three options having less dominance than the top three options of general orientation (76.8% compared to 86.9%), that three categories out of thirteen possible classifications, does not appear to be reflective of diversification among accredited business school mission orientations. The three coding options, BPB-1, BPB-7, and BPB-2 account for almost eighty percent of reporting schools from the US and Europe.

Table 9: Most Commonly Reported Scholarship Orientation Emphasis Codes Among Both US- and European-Based AACSB-Accredited Business Schools

All Reporting AACSB Schools	# Schools Reporting	% Schools Reporting
BPB-1	182/337	54.0
BPB-7	51/337	15.1
BPB-2	26/337	7.7
TOTALS	**259/337**	**76.8**

This table shows the three most commonly reported categories of what is emphasized in the scholarly orientation of the program mission of all AACSB-accredited schools in the US and Europe that participated in the Data Direct Business School Questionnaire, along with the number and percentage of reporting schools choosing these options.

Last, several crosstab analyses were conducted between the variables of Priority, Emphasis, Participating Faculty, and Supporting Faculty to determine if there were any noticeable leanings between how

reporting business schools define their mission's orientation and how they define qualifications of their faculty. The analysis did not reveal the existence of any association. However, as the 2013 standards are in the early stages of adoption, especially as they relate to the hiring of new faculty across business schools, it is expected that it may simply be soon for any such linkages to be overtly detectable. This is, however, a prime area that should be revisited in a few years to determine if new standards have influenced faculty classifications among member schools.

CONCLUDING COMMENTS

<u>Limitations and Opportunities</u>

There are several constraints to this research. The foremost is the limited number of schools that provided a response to DataDirect. The AACSB website provided several school classifications for BPA and BPB orientations where DataDirect did not. This is seen as most attributable to the fact that many schools that are still transitioning to the only recently adopted 2013 standards; they may have simply opted not to participate in DataDirect's surveys; 2014-2015 data was utilized in this study, when the transition period to 2013 AACSB-standards was still ongoing. Another potential limitation is that it is not known who, within responding schools, completed the surveys; it may have been the Dean, an Associate Dean, committee chair, administrative assistant, or it could be outsourced to Office of Institutional Research or other similar administrative department outside of the business school entity less vested in data reporting. There may also have been time constraints involved in the submitting of surveys, thus resulting in a hurriedly completed, and less accurate, survey. The above limitations inspire a range of opportunities for future research. The first subsequent study should look into why there is such a dearth of variance in mission orientation; the range of options exists for a reason, yet, most schools ignore them. Why do so many schools in both the United States and Europe self-report that "Teaching" receives the highest degree of emphasis in their mission while "Learning and Pedagogical" research is virtually ignored?

There are several other possible areas for future investigation. One would be a comparative study between to extend this study to other geographical regions, such as Asia, Canada, or South America. How does a school's mission influence its recruiting of students and of faculty? As noted above, many schools are still in a state of transition between the standards introduced in the 1990's and those introduced three years ago. It could prove quite thought provoking to revisit DataDirect two or three years from now, after the 2013 Standards have had some time to take hold and mature within the environment of business schools. There is a tremendous amount of data available through DataDirect and a veritable laundry list of topics exists. Research into the degree of impact or influence that organizational culture has on a business school's mission; does school size, control, type of faculty, etc. is calling out to be done.

AACSB's Standard 2, specifically, emphasizes that a school's research should have a positive impact on the advancement of theory, practice, and/or teaching consistent with the school's mission, expected outcomes, and strategies. Impact is broadly defined by AACSB as making a difference by contributing to the practice of business. There are three coding options (BPB-2, -6, and -12) where contributions to practice receives the most emphasis in a business school's mission. Regrettably, less than 20% (18.6%) of all participating schools selected *any* of these three as being indicative of their mission. Options BPB-7 and BPB-8 list contributions to practice as sharing an equal amount of emphasis as discipline-based research. Again, only 20% (57 out of 285) of participating schools chose either of these coding options to describe the scholarship orientation of their mission. It is neither the desire nor the intent of this study to be too controversial. However, if business education and research are to be relevant and impactful, both on and for, the practice of business in today's rapidly changing world environment, intellectual contributions should be aligned accordingly with the school's mission and recognized accordingly.

Our research shows that despite the many options available for business schools to differentiate themselves in an increasingly competitive global market via the orientation of their missions in general or their scholarship specifically, the majority only avail themselves of the same two or three choices. This is especially noteworthy given the focus on the mission-driven organizational performance that has transpired over the past two to three decades in business higher education.   Further, it seems almost contradictory in nature that the majority of accredited institutions who chose to respond to surveys conducted by their own accrediting agency, claim that teaching receives the highest emphasis among their general orientation priorities, yet learning and pedagogical research is emphasized the least concerning scholarship emphasis. The analysis undertaken in this study of self-reported data supplied by accredited business schools to *Data Direct*, a division of AACSB, shows that most respondent business schools clearly categorize themselves in conformity with each other regarding the priorities assigned to how they emphasize the general and scholarly orientations of their missions. The authors believe this high level of conformity is a direct result of accredited business schools benchmarking their PAC institutions to achieve or maintain accreditation status.

Benchmarking is a time-honored and valuable tool for both the practice and education of business. However, the results of this study undeniably show that this practice may be creating more conformity - not diversity – in what accredited business schools emphasize in their programs. The desire and, perhaps, necessity in some cases, to be able to compete more successfully in an increasingly crowded market for funding, to have a school's program recognized and affirmed by the world's leading accrediting agency of business schools may unintentionally be hindering diversity and eradicating differentiation.

REFERENCES

Antunes, D. & Thomas, H. (2007), "The competitive (dis) advantage of European business schools," *Long Range Planning*, vol. 40(3), p. 382-404.

Baker, M.J. & Balmer, J.M.T. (1997), "Visual identity: trappings of substance," *European Journal of Marketing*, Vol. 31(5/6), p. 366-382.

Bisoux, T., (2003), "The Zen of B-school branding," *BizEd,* vol. 3(1), p. 24-29

Brennan, J. & Shah, T. (2000), "Quality assessment & institutional change: experience from 14 countries," *Higher Education*, vol. 40(3), p. 331-349.

Brink, K. E., & Smith, C. (2012), "A comparison of AACSB, ACBSP, and IACBE accredited US business programs: An institutional resource perspective," *Business Education & Accreditation,* vol. 4(2), p. 1-15.

Davis, S.W. & Glaister, K. W. (1997), "Business school mission statements – the bland leading the bland," *Long Range Planning*, vol. 30(4), p. 594-604.

Davis, J., Ruhe, J., Lee, M., & Rajadhyaksha, U. (2007), "Mission possible: do school mission statements work," *Journal of Business Ethics*, vol. 70(1), p. 99-110.

Engwall, L. (2007), "The anatomy of management education," *Scandinavian Journal of Management*, vol. 23(1), p. 4-35.

Farquhar, R. H. (1998), "Higher education benchmarking in Canada and the United States of America", *Benchmarking in higher education: An international review*, 21.

Gioia, D.A. & Thomas, J. B. (1996), "Identity, image, & issue interpretation: sensemaking during strategic change in academia," *Administrative Science Quarterly*, vol. 41(3), p. 370-403.

Glynn, M.A. & Abzug, R. (2002), "Institutionalizing identity: symbolic isomorphism & organizational names," *Academy of Management journal*, vol. 45(1), p. 63-81.

Henninger, E.A. (1998), "Perceptions of the impact of the new AACSB standards on faculty qualifications," *Journal of Organizational Change Management*, vol. 11(5), p. 407-424.

Hunt, S. C. (2015), "Research on the value of AACSB business accreditation in selected areas: A review and synthesis." *American Journal of Business Education (Online),* vol. 8(1), 23.

Jantzen, R.H. (2000), "AACSB mission-linked standards: effects on the accreditation process," *Journal of Education for Business*, vol. 75(6), p. 343-348.

Jeliazkova, M. & Westerheijden, D.F. (2002), "Systematic adaptation to a changing environment: Towards a new generation of quality assurance models," *Higher Education*, vol. 44(3-4), p. 433-448.

Lin, Y. P. (2015). Association to Advance Collegiate Schools of Business Accreditation: A Longterm Perspective, *Business Education & Accreditation,* vol. 7(1), p. 25-32.

McKenna, J.F., Cotton, C.C. & Van Auken, S., (1995), Business school emphasis on teaching, research & service to industry: does where you sit determine where you st&," *Journal of Organizational Change Management*, vol. 8(2), p. 3-16.

Medenica, L. (2016), "What universities can learn from businesses: a critical research study of adapting corporate organizational development approach in university environment," *Business Education and Accreditation,* vol. 8(1), p. 57-69.

Miles, M. P., Franklin, G., Heriot, K., Hadley, L., & Hazeldine, M. (2014), AACSB International's 2013 Accreditation Standards: Implications for Faculty and Deans, vol. 7(2), p. 86-107.

Palmer, T.B. & Short, J.C. (2008), "Mission statement in US colleges of business: an empirical examination of their content with linkages to configuration & performance," *Academy of Management, Learning & Education*, vol. 7(4), p. 454-470.

Pearce, J. & David, F. (1987), "Corporate mission statements: the bottom line," *The Academy of Management Executive,* vol. 1(2), p., 109-115.

Proitz, T.S., Stensaker, B. & Harvey, L. (2004), "Accreditation, standards & diversity: an analysis of EQUIS accreditation reports," *Assessment & Evaluation in Higher Education*, vol. 29(6), p. 735-750.

Ruhul Amin, M., & Amin, N. A. (2003), Benchmarking learning outcomes of undergraduate business education. *Benchmarking: An International Journal*, vol. 10(6), 538-558.

Sporn, B. (1999), Convergence or divergence in international higher education policy: lessons from Europe," Accessed 20 November 2016 at: https://net.educause.edu/ir/library/pdf/ffpfp0305.pdf.

Stensaker, B. R. (2000), "Quality as discourse: an analysis of external audit reports in Sweden 1995-1998," *Tertiary Education & Management*, vol. 6(4), p. 305-317.

Stepanovich, P., Mueller, J., & Benson, D. (2014), AACSB accreditation and possible unintended consequences: A Deming view. *Journal of Education for Business*, vol. 89(2), p. 103-109.

Tasopoulou, K., & Tsiotras, G. (2017). Benchmarking towards excellence in higher education. *Benchmarking: An International Journal*, vol. *24*(3).

Xie, C., & Steiner, S. D. (2013), "Enhancing management education relevance: Joint creation of knowledge between business schools and business," *Business Education and Accreditation*, vol. 5(2), p. 1-15.

Yorke, M. (2000) "Developing a quality culture in higher education," *Tertiary Education & Management*, vol. 6(1), p. 19-36.

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DOES INTERNATIONAL BUSINESS ACCREDITATION ASSURE QUALITY OR CONSTRAIN INNOVATION?

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ABSTRACT

This paper employs textual analysis to investigate whether business school accreditation guidelines may be considered to facilitate innovation. We identify the relative dominance of concepts and themes within accreditation guidelines of the three primary international business school associations. They demonstrate a relative paucity of concepts broadly related to innovation and a lack of sustained attention to experimentation and transformation. The location of these concepts within the various themes suggests that innovation is generally associated with discipline-based research while concepts with lesser innovative connotations are associated with education. We conclude that dominant business school accreditation standards do not yet induce behavior that extends much beyond focusing on assuring quality based upon past performance and metrics aligned with guaranteeing similar future outcomes.

INTRODUCTION

Accreditation of tertiary education institutions has existed in one form or another for well over a century. Its introduction in the United States of America dates back to the late nineteenth century as a cooperative process between institutions. Involvement of the United States Federal Government commenced in the early 1950s. Since then, general and specialist accrediting agencies in the country have included both government agencies and private associations. As stated by the U.S. Department of Education the core purpose of accreditation is to ensure that "education provided by institutions of higher education meets acceptable levels of quality" (US Department of Education, 2014). Although mechanisms for achieving degree granting authority and accreditation processes vary around the world, the underlying motivation for accreditation is twofold. First, it should serve a public purpose. Complexities within the sector and the use of public money to fund institutions and students, necessitates that the interests of the public are protected. Society has the right to know if public funding is being effectively employed, the right to be reassured that credentials offered to graduates reflect appropriate quality, and the right to know the extent of credential comparability across institutions. Second, accreditation should also serve the interests of tertiary education institutions by supporting them in pursuing continuous improvement and by reducing the costs of inter-institutional collaboration. Numerous authors (Lejeune & Vas, 2009; Pringle & Michel, 2007, Zammuto, 2008) have articulated these perspectives, and some have been particularly scathing (Conn, 2014). Critics of accreditation generally argue that the second *institutional purpose* has become dominant as the motivation for, and in the execution of, accreditation processes. They argue that this occurs at the expense of the former *public purpose* (American Council on Higher Education, 2004; Dickeson, 2006: 3). In addition to this, some researchers argue that certain accreditation bodies have not even met their goal of supporting continuous improvement (Eaton, 2007a, 2007b; Lowrie & Willmott, 2009; Quinton, 2014).

This concern is appreciated by regulating authorities, accreditation bodies, and universities that understand the potential for regulation and/or accreditation requirements to undermine precisely the dynamic and responsive behaviors they wish to encourage (King Alexander, 2000; Hoecht, 2006). These include the three primary internationally oriented accrediting organizations for business schools—the Association to Advance Collegiate Schools of Business (AACSB International), the Association of MBAs (AMBA), and the European Foundation for Management Development (EFMD) through its European Quality Improvement Systems (EQUIS). They argue that their mission or strategy centric accreditation processes are designed precisely to provide business schools with the flexibility needed to be market and environment responsive while nonetheless adhering to overall quality requirements. However, the question remains whether the standards established to ensure overall quality don't themselves provide the brake on needed innovation because of the specificity considered necessary within each to assess whether the desired quality is present. We employ text analysis to investigate the extent to which accreditation guidelines may be considered to facilitate or encourage innovation. Not surprisingly, guidelines are dominated by descriptions of the metrics and assessment procedures considered necessary to measure, monitor, and continue to improve education practices. These practices relate to education programs, research, extra-curricular development of students, employability of graduates, and to external stakeholder engagement. Our text analysis investigates whether calls for innovation are adequately embedded within the guidelines as signals of flexibility and tolerance for experimentation.

LITERATURE REVIEW

Calls for innovation within the tertiary education sector abound. The Economist magazine exemplified this with a cover headline stating *Creative Destruction: Reinventing the University* (2014, June 28). The feature article that followed, attributed the need for transformation to three underlying and unstoppable drivers of (a) changing demands from learners, (b) technological innovation that is clearly influencing the nature of demand and the extent of access, and (c) rising costs experienced by what has traditionally been a labor-intensive industry suffering from stagnant productivity.

Numerous academic and popular articles predicting either the demise of traditional place-based universities or questioning the veracity of claims that technology mediated forms of education offer previously unimagined scale with educating (teaching) and research (knowledge creation) becoming unbundled but with quality of learning fully retained if not enhanced. Ruscio (2013) stresses the importance of the teacher-scholar. In so doing he makes the case that unbundling of teaching from research undermines the development of the student. Students need to be exposed to the nature of academic enquiry and to methods used in basic and applied research to develop their critical thinking abilities and their ability to view problems and opportunities through multiple lenses. Arguments in favor of massive open online courses (MOOCs) with one resident global expert being scaled to offer the same quality of education that he or she has done in a small intimate classroom setting in the past remain something of a *lightning rod* in academic circles. Several years ago Duke University faculty forced the university to withdraw from a consortium based for-credit online program (Rivard, 2013), while more recently the University of California president, Janet Napolitano, also expressed her skepticism over the use and cost-effectiveness of online programs (Bernstein, 2014). In spite of these criticisms, others continue to see a bright future for online business education (Agarwal & Paucek, 2015; Jaschik, 2009). Whatever one's perspective on these crucial debates, the need for education institutions to enhance their responsive capabilities and to innovate is clear and understood to be so by business school accrediting associations.

However, in spite of claims that accreditation is a key driver of responsive and evidence-based innovation and curricula change (Kezar, 2014), national and international business school accreditation has not been immune from continued criticism to the contrary (Dillard & Tinker, 1996; Hedin, Barnes & Chen, 2005; Scherer, Javalgi, Bryant & Tukel, 2005). Associations responsible for specialized business or management

accreditation have sometimes been found wanting across both dimensions of public protection and support for improvement. Others have gone so far as to suggest that:

> … *'accreditocratic' forces increasingly influence the strategic decision making of business schools involved with accreditation. To the extent that the environments of business schools are becoming more turbulent and hypercompetitive, we argue that current accreditation standards increase the likelihood of poor strategic decision-making. Operating in turbulent environments may necessitate rethinking the traditional strategic control process that characterizes current accreditation standards.* (Julian & Ofori-Dankwa, 2006, p. 231)

In making this argument, Julian and Ofori-Dankwa (2006) caution that the natural reliance of accreditation processes on hard and verifiable data may overly focus on track record. They suggest that this focus comes at the expense of ongoing external stakeholder monitoring and accelerated innovation that dynamic market conditions require. Gaining and maintaining accreditation may induce business schools to look for more program stability and cause them to focus on historically oriented quality metrics as accreditation risk-reduction mechanisms. Although rational in the short- to medium-term, such behavior is at odds with the longer-term aspirations of the schools themselves and of the espoused desires of the accrediting bodies.

AACSB International introduced its revised standards in 2013 under the mantra of "a bold evolution for the global business revolution" and with the attached keywords of *innovation*, *impact* and *engagement* (AACSB International, 2015). AMBA and EQUIS also stress innovation and relevance as important aspects for recognition. AMBA does this in stating that "programs should be of the highest standards and reflect changing trends and innovation in postgraduate management education" (Association of MBAs, 2015), while EQUIS stresses the need for a "balance between high academic quality and the professional relevance provided by close interaction with the corporate world" and "innovation in all respects, including program design and pedagogy" (European Foundation for Management Development, 2015).

Leading business school deans have also stressed the need for innovation and continual renewal. Dominique Turpin (2013, p. 7), dean of the International Institute for Management Development (IMD) in Lausanne, argues that business education is facing its biggest challenges and opportunities in its history because of changes in public funding, demographics, technology, and global economics. Howard Thomas, dean of Singapore Management University's business school, and Peter Lorange, president of the Lorange Institute of Business in Zurich, believe that business schools will need to master the strategic concept of *dynamic capabilities* to effectively respond to the "challenges of impact, relevance, and competition" (Thomas, Lorange & Sheth, 2014, p. 9). Rich Lyons, dean of UC Berkeley's Haas School of Business, involved his school in a multi-university National Science Foundation (NSF) funded process to develop an Innovation Corps. He recognized the need for business schools to support innovation by helping the NSF funded scientists convert "ideas into money" (Shinn, 2013, p. 31) and understood the curricula innovation within the school needed to achieve this. Peter Henry, dean of the Stern School of Business at New York University, has transformed the MBA curriculum by "flipping the MBA experience" and establishing a vice dean of innovation (Bisoux, 2013, p. 20). As a final illustration of the importance business school deans place on innovation, Robert Sullivan, dean of UC San Diego's Rady School of Management, argues that it is "critically important that business schools (and universities) constantly reinvent themselves" and "continuously consider what innovation looks like for their stakeholders and adapt their programs to meet the needs of their communities" (Sullivan, 2014, p. 19).

DATA AND METHODOLOGY

Four business school accreditation guideline documents were selected for analysis. As alluded to above, they represent current and past accreditation requirements for the three most internationally recognized

business school associations: AACSB International which accredits universities and business schools for their portfolio of business programs, AMBA which essentially accredits business programs, and the EFMD which accredits business schools. The three associations collectively accredit some 1,000 business schools or business programs around the world (Osbaldeston, 2014, p. 9) and they dominate the global accreditation market for tertiary management education institutions. The current standards guideline documents for all three bodies were included as well as the prior guideline for AACSB International. The four documents were extracted as portable document files *(.PDF)* from their respective association websites at http://www.aacsb.edu, http://www.mbaworld.com, and www.efmd.org. Given the magnitude of the documents, content analyses were undertaken using specialized software that extended beyond simple word counts to the analysis of word co-location as a means of identifying broader themes underlying the corpora. Logical consistency of the statistical output—word clustering and aggregation—was also independently crosschecked by the authors. This combination of automation and validation was considered appropriate to meet the objective of the procedure, which has been defined as "a systematic, replicable technique for compressing many words of text into fewer content categories based on explicit rules of coding (Stemler, 2001).

Methodological Details

Once downloaded, the documents were individually and collectively analyzed using *Leximancer* (http://info.leximancer.com/company/). Developed at Australia's University of Queensland, this text analytics and visualization tool extracts *concepts* and *themes* from text documents using a natural language process algorithm, text tagging, and syntactic parsing. The individual texts and the corpus are broken up into tokens that are then organized based on co-location (clustering) and sentiment analysis using a proprietary semantic algorithm (Smith & Humphreys, 2006). The package has been employed in a number of academic papers spanning such fields as accountancy (Crofts & Bisman, 2010), cross-cultural psychology (Cretchley, Rooney & Gallois, 2010), medicine (Kyle, Nissen, and Tett, 2008), and services (Lau, Lee & Ho, 2005). Endorsement of the software is also reflected in that these and other empirical publications using or critiquing Leximancer have appeared in quality journals such as *Behavior Research Methods*, *Clinical Therapeutics*, *International Journal of Social Research Methodology*, *Journal of Cross-Cultural Psychology* and *Qualitative Research in Accounting and Management*.

Preparation of source documents. Before inputting the documents into the software for analysis, we converted the four downloaded .PDF international accreditation guidelines to standard text format (.TXT) and manually edited each of them to ensure that sections identified as sentences and paragraphs in the source documents retained their integrity during conversion. Additionally, given the international sources of the documents, all words were converted to American rather than Commonwealth English. Once this had been completed, we further edited each document to achieve fuller style alignment in three key ways by (a) removing variation in bulleting format that could inadvertently introduce spurious seed words, (b) removing all capitalization within sentences unless it explicitly referred to a proper name, and (c) changing all occurrences of business school to school throughout the documents. The third change was considered necessary to prevent business + school from being spuriously associated with other occurrences of business that correctly refer to the businesses that schools work with and that employ their graduates. We also considered the change necessary to prevent the program from finding business and schools co-located in the corpus more than is actually the case. Removal of non-lexical words. Given the exploratory nature of the analysis, we decided to analyze the individual edited-documents by largely retaining the default setting of Leximancer to generate the concept seeds. These text and concept processing settings relate to both sentence and block structure, and to the identification and removal of non-lexical or weak semantic information (stop-words). Our exceptions to this use of the system defaults involved identifying school(s) as non-lexical or weak semantic informational for all analyses and doing the same with the respective association acronyms (AACSB, AMBA, EQUIS) for the guideline-by-guideline, but not

consolidated corpus, analyses. Generation of concepts and themes. Concepts were generated using the program's seeding algorithm that starts by identifying the most frequently occurring words as initial (automatic) concepts. The package then engages a learning process to update the seed by adding relevant co-located words and establish a final complex construct. These concepts are then aggregated into themes that are heat-mapped based upon their relative dominance or importance within the text. Graphical output options used in the study requested that all concepts be made visible and set the theme size to 30%. Setting the theme size to 0% creates no identified themes and presents the concepts as discrete and separate entities. Setting the theme size to 100% aggregates all the concepts into a single non-discriminating theme.

RESULTS

Table 1 presents the top twenty-five concepts identified for each of the four accreditation guides and for the overall corpus. As stated in the methodology, the overall corpus results allow for the inclusion of the association acronyms (AASCB, AMBA, EQUIS) when generating the final concepts and integrating themes.

Table 1: Identified Concepts

	AACSB (2013)		AACSB (2003)		AMBA		EQUIS		Full Corpus	
1	faculty	100.0%	faculty	100.0%	accreditation	100.0%	programs	100.0%	faculty	100.0%
2	mission	91.3%	members	86.7%	assessment	40.9%	faculty	88.3%	members	92.0%
3	degree	85.1%	learning	75.9%	MBA	24.0%	describe	77.9%	programs	80.5%
4	outcomes	79.0%	programs	71.2%	visit	24.0%	students	68.2%	learning	66.0%
5	expected	77.4%	mission	61.4%	team	22.7%	international	59.7%	mission	60.3%
6	members	72.3%	students	57.3%	program	21.4%	education	57.8%	accreditation	59.4%
7	strategies	68.7%	degree	52.2%	panel	20.8%	research	57.8%	students	57.3%
8	programs	68.7%	program	37.7%	report	19.5%	program	50.6%	degree	49.0%
9	management	67.2%	management	37.0%	staff	19.5%	development	48.1%	management	48.7%
10	business	63.6%	business	36.7%	institution	18.8%	management	46.1%	program	46.9%
11	academic	54.9%	goals	35.8%	programs	18.2%	responsibility	41.6%	business	44.1%
12	teaching	54.4%	accreditation	35.8%	provide	18.2%	provided	40.9%	academic	41.4%
13	learning	53.3%	review	34.8%	students	18.2%	activities	39.0%	activities	37.9%
14	professional	52.3%	academic	34.5%	process	18.2%	quality	38.3%	education	37.7%
15	activities	50.8%	student	27.8%	IAAB	17.5%	processes	38.3%	review	36.7%
16	accreditation	43.6%	intellectual	27.5%	management	16.9%	corporate	37.0%	teaching	36.4%
17	program	41.5%	institution	26.6%	accredited	15.6%	learning	35.7%	quality	31.7%
18	review	40.5%	activities	26.3%	faculty	15.6%	strategic	35.7%	research	30.7%
19	contributions	40.0%	education	25.0%	DBA	14.9%	strategy	35.1%	development	30.1%
20	intellectual	39.0%	statement	25.0%	assessors	14.9%	key	33.8%	student	29.6%
21	engagement	34.4%	quality	24.7%	criteria	14.9%	objectives	33.1%	support	29.2%
22	education	32.8%	development	23.7%	information	14.3%	support	29.9%	intellectual	28.9%
23	support	31.3%	knowledge	23.1%	manager	13.6%	student	29.9%	professional	28.6%
24	students	31.3%	resources	22.8%	include	12.3%	staff	29.2%	contributions	27.8%
25	impact	29.7%	level	22.8%	fee	12.3%	assessment	27.3%	describe	27.1%

Percentage of the first 25 concept mentions relative to the dominant concept for each of the five analyses. The dominant concept is mentioned 195, 316, 154, 154, and 665 times respectively but is scaled to 100% to accommodate the various length documents. Sixteen, 21, 11, 15 and 27 lower percentage program identified concepts are excluded from the table.

The 100 concepts presented in the table for the four accreditation guidelines represent only 60 unique concepts when the four occurrences of both singular and plural concepts are combined. Of these, four—faculty, management, program(s), and student(s)—are mentioned in each of the guidelines with an average dominance of 76.0%, 41.8%, 102.3% and 58.2% respectively. Four concepts—accreditation, education, learning, and quality—are mentioned in three of the guidelines with average dominance of 69.8%, 38.5%, 55.0% and 30.9% respectively. Fourteen concepts are mentioned in two of the guidelines but only one of these—development—may be considered to be oriented to change and innovation. Unsurprisingly, all the concepts mentioned three or more times across the individual analyses are all mentioned in the analysis of the full corpus, as are ten of the concepts mentioned twice. Identified themes across the five analyses are presented in Table 2 while the graphical representations of both the themes and underlying concepts are presented in the Figure 1. The circles within the diagram represent the themes and all identified concepts are labeled. The themes are numbered in order of importance (1 = most important) rather than using the heat-map approach used in Leximancer to improve legibility for monochrome printing. The visible lines joining the concepts represent the most-likely, or primary, connections between them.
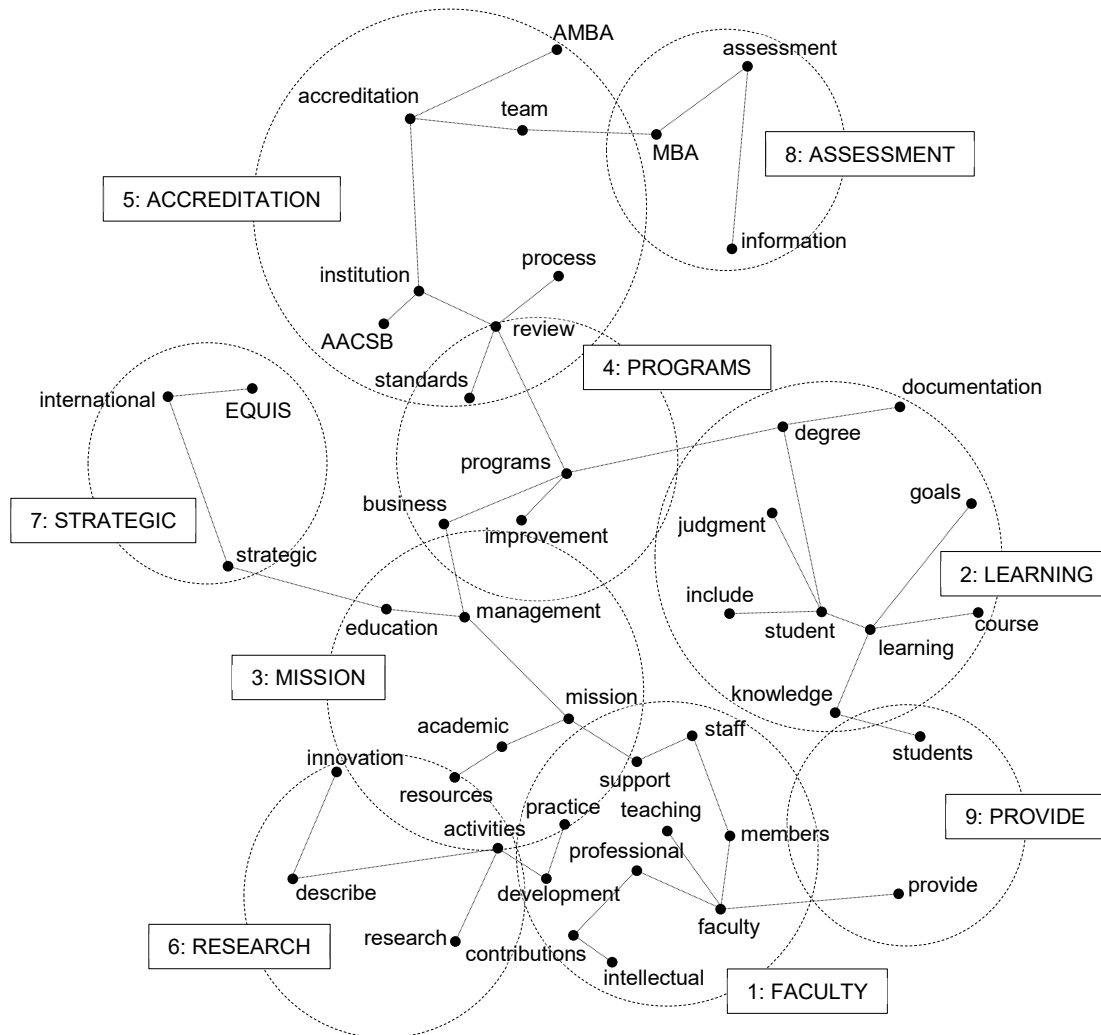
Table 2: Identified Themes

	AACSB (2013)		**AACSB (2003)**		**AMBA**		**EQUIS**		**Full Corpus**	
1	mission	100%	faculty	100%	accreditation	100%	describe	100%	faculty	100%
2	faculty	67%	programs	48%	programs	75%	programs	82%	learning	63%
3	learning	50%	learning	32%	MBA	39%	faculty	56%	mission	61%
4	degree	43%	quality	25%	team	39%	program	41%	programs	53%
5	management	43%	goals	15%	assessment	27%	activities	32%	accreditation	31%
6	teaching	43%	academic	14%	management	25%	provided	31%	research	11%
7	academic	38%	program	13%	information	17%	strategic	26%	strategic	8%
8	contributions	32%	student	13%	faculty	15%	process	13%	assessment	8%
9	accreditation	21%	accreditation	13%	relevant	13%	student	12%	provide	2%
10	quality	21%	review	12%			criteria	6%		
11	institution	8%	support	11%			national	4%		
12	practice	7%	peer	8%						
13	standards	6%	statement	4%						
14	criteria	4%								
15	documentation	3%								

The percentages show the connectivity between the primary theme (100%) and the remaining themes for each analysis

Figure 1 depicts the relationships between the concepts and how they aggregate into themes for the entire corpus of four accreditation documents. The somewhat traditional character of the accreditation agencies is clearly evident from the mapping. Faculty, learning (education), and mission are identified as the primary themes. We describe this as traditional because of the trend over the past three decades for accreditation agencies to focus on institutional mission or strategic orientation as the basis upon which institutions need to be assessed (Julian & Ofori-Dankwa, 2006, p. 226; Lowrie & Willmott, 2009, p. 412; Scherer et al., 2005, p. 654; Urgel, 2007, p. 78). Mission, together with faculty and learning, represent the elements that collectively describe the core of business school activities that accrediting bodies seek to investigate and endorse. Concepts identified within these three dominant themes are also consistent with this, and with an implied dominant focus on assessment and maintenance of quality. The attention to assessment is further amplified when examining the concepts underlying the remaining themes. This finding is unlikely to be viewed as surprising, and a case can be made to suggest that it is actually encouraging. If the purpose of accreditation is "quality assurance and quality improvement in higher education" (Eaton, 2010, p. 1), then achieving both goals surely requires rigorous assessment of current practices and performance in the areas of education and research? What is noticeable in the figure is the relative paucity of concepts that relate

broadly to innovation. Even the most generous interpretation of the eight concepts—contributions, development, improvement, innovation, judgment, knowledge, research, and strategic—included in the figure falls short of demonstrating a sustained attention to experimentation and transformation. Rather, their location within the various themes confirms/suggests the more conventional association of three—development, innovation, research and contributions—with the discipline-based research demands of faculty. Similarly, three more concepts—improvement, knowledge and judgment—appear to be associated with education in a more conventional sense.

Figure 1: Themes and Concepts for the Full Corpus

Relationship between the concepts and how they aggregate into themes for the entire corpus of four accreditation documents. Theme names that are drawn from the dominant concept within the identified theme are capitalized and flagged with the numerical indicator of importance (1 = most important).

Although not presented as individual figures, concepts and their position within broader themes for each of the accreditation guidelines broadly mirror those presented in Figure 1 for the full corpus of documents. Individually, they remain predominantly oriented to assurance of quality based upon historical performance records rather than towards innovation and processes that value change. The two dominant themes of accreditation and programs for the AMBA guide, and of describe and programs for the EQUIS guide reflect

this. Concepts underlying these dominant themes refer to measurement and description of current and past practices. For the AMBA guide concepts within the two themes include accreditation, criteria, process, provide, visit, and panel. For the EQUIS guide concepts include describe, management, processes, and quality. The third through fifth themes for each guide also include concepts that align with an assessment of performance and confirmation of ongoing monitoring.

The two AACSB accreditation guidelines overlap considerably with respect to their dominant themes and key underlying concepts. The first three themes for the 2003 accreditation standards—faculty, programs, and learning—map almost identically with the second through fourth themes—faculty, learning, and degree—for the 2013 standards. Although the ordering changes with subsequent themes, the two standards remain broadly consistent. A single, possibly outstanding, feature that separates the standards is the presence of mission as the first identified theme for the recently adopted 2013 standards. This theme includes the impact and outcomes concepts. However, in spite of the elevation of ideas related to impact, the overall text analyses for the two standards remain remarkably consistent with the results found for the AMBA and EQUIS guidelines. They also focus on assurance and proof of processes oriented to sustaining quality.Clear differences between the documents are essentially restricted to overarching focus differences across the three accrediting organizations. Unsurprisingly, the text analysis of (a) the Association of MBAs guidelines reflects more of a MBA program than institution accreditation orientation, (b) the European Foundation for Management Development's EQUIS guidelines emphasizes internationalization and corporate connections, and (c) the AACSB International standards pay relatively more attention to scholarship and research.

CONCLUDING COMMENTS

Accreditation associations articulate the need for business schools to innovate in order to remain of relevance to students, businesses and society at large. We investigated the extent to which their accreditation guidelines actually facilitate or encourage innovation. The method we employed involved a sophisticated quantitative tool for approaching large texts. On the one hand, this means that we cannot claim to have established potential nuances in the different meanings of concepts and themes used in the four accreditation guidelines, and potential nuances in the manner in which the guidelines do or do not call to innovation. On the other hand, it gave us highly informative (visual) renderings of those concepts and themes, and their relative positioning, therewith providing insights in potential sentiments of the text. Based on this, we found that the tone of the texts leads schools to give greater prominence to program and research metrics that highlight dimensions of *proven* quality—prominence that may lead them to emphasize the extraction of historical record as a signal of quality assurance for the future.

It would certainly require too much of a stretch for us to conclude that accreditation guidelines of the leading international business school accreditation bodies analyzed in this paper constrain innovation. Among other things, this would require further analysis of the exact effects that particular concepts and themes (such as strategy, monitoring), and the way they are presented in accreditation guidelines, have on the schools in question. In other words, do they have the effect of stimulating or constraining innovation? Our research makes it clear, however, that considerably less emphasis exists within the guidelines to motivate schools to provide demonstrations of innovation and risk-taking. Alternatively articulated, we find little evidence of active confidence-building inducements for schools wishing to demonstrate innovative activities as positive features that enhance their accreditation worthiness.In spite of the increased debate about the importance of innovation within the management education sector, the evidence presented in this paper confirms that international accreditation of business schools and programs remains focused on issues of quality and conformance with pre-determined standards oriented to its assurance. Considerably less encouragement and incentive for innovation is apparent within the guidelines. Although the terms engagement, impact, innovation, and relevance may be used, their meaningful integration into the corpus as *calls to action* remains limited. Lead articles in recent editions of the house journals of the Association to Advance

Collegiate Schools of Business (BizEd) and of the European Foundation for Management Development (Global Focus) highlight the importance both associations give to innovation and the need for management education to transform. The cover featured articles for the journals include: *The business of change* (Saloner, 2013), *Major disruption ahead* (Hommel & Lejeune, 2013), *The future is out there* (Crisp, 2013), *Dynamic capabilities and the business school of the future* (Thomas, Lorange & Sheth, 2014), *The challenges facing business school accreditation* (Osbaldeston, 2014); *Bright ideas* (Bisoux, 2013); and *How b-schools inspire innovation* (Sullivan, 2014). As many of the articles suggest, responding to these pressing issues will require increased curricula innovation combined with greater engagement with external stakeholders. It will also require research that is responsive to the complex challenges facing businesses and societies, and that results from collaboration beyond the boundaries of discipline and the academy.

Accreditation standards by the three major international associations have yet to evolve to the point where they extend beyond a focus on assuring quality based upon past performance and metrics aligned with *guaranteeing* similar outcomes for the future. Significantly increasing the attention given to stimulating innovation will likely require further adjustments to the accreditation guidelines—adjustments that encourage greater judgment on behalf of peer assessors and accreditation committees, adjustments that increase tolerance for experimentation across programs, and adjustments that provide further flexibility when interpreting measures of scholarship across knowledge generation, integration, and translation. While the textual analyses of accreditation guidelines undertaken in this research suggests that the importance of innovation is less emphasized than public statements by international business education accreditors suggest it might be, we recognize that these bodies have other avenues and means available to them to highlight the importance of innovation in management education. These include accreditation conferences, accreditation committee dialogue, business school mentoring/advising, and the training and deployment of peer visit teams. Consequently, a limitation of our study is that our findings are based on primary guideline documents exclusively, without looking into other sources of guidance to institutions seeking to earn, or retain, their international accreditation status. This limitation suggests avenues for further research could include analyzing presentations at accreditation conferences, conducting in-depth interviews with mentors/advisors and peer review team members about approaches for assessing innovative strategies employed by applicant schools, and direct surveying business school deans to obtain their perceptions of the extent to which accreditation demands encourage innovation or conformity.

REFERENCES

AACSB International (2015) 2013 Standards: A bold evolution for the global business revolution. Retrieved June 28, 2015 from http://www.aacsb.edu/en/accreditation/standards/2013-standards/

Agarwal, A. & C. Paucek (2015, January 11) The future of online learning. *Financial Times*. Retrieved July 2, 2015 from http://www.ft.com/intl/cms/s/2/f8a03bbe-9802-11e4-b4be-00144feabdc0.html#axzz3ekQOqbxT

American Council on Education (2004) Public accountability for student learning in higher education: Issues and options. *Business-Higher Education Position Paper*, Washington DC., item #209813. Retrieved from http://www.bhef.com/publications/public-accountability-student-learning-higher-education-issues-and-options

Association of MBAs (2015) Value of accreditation. Retrieved June 28, 2015 from http://www.mbaworld.com/en/Accreditation.aspx

Bernstein, S. (2014, March 24) University of California's Napolitano joins skeptics over online courses. *Reuters*. Retrieved from http://www.reuters.com/article/2014/03/25/us-usa-california-napolitano-idUSBREA2O02R20140325

Bisoux, T. (2013) Idea central. *BizEd*, vol. 12(6), p. 20-26

Conn, P. (2014) The great accreditation farce. *The Chronicle of Higher Education*, published 30 June, 2014. Retrieved from http://chronicle.com/article/The-Great-Education-Farce/147425/

Creative destruction: A cost crisis, changing labor markets and new technology will turn an old institution on its head (2014, June 28) *The Economist*. Retrieved from http://www.economist.com/news/leaders/21605906-cost-crisis-changing-labour-markets-and-new-technology-will-turn-old-institution-its

Cretchley, J., D. Rooney & C. Gallois (2010) Mapping a 40-year history with Leximancer: Themes and concepts in the Journal of Cross-Cultural Psychology. *Journal of Cross-Cultural Psychology*, vol. 41(3), p. 318-328

Crisp, A. (2013) The future is out there. *EFMD Global Focus*, vol. 7(3), p. 6-9.

Crofts, K. & J. Bisman (2010) Interrogating accountability: An illustration of the use of Leximancer software for qualitative data analysis. *Qualitative Research in Accounting and Management*, vol. 7(2), p. 180-207

Dickeson, R.C. (2006) "The need for accreditation reform", *Commission on the Future of Higher Education*. Retrieved from http://www2.ed.gov/about/bdscomm/list/hiedfuture/reports/dickeson.pdf

Dillard, J.F. & T. Tinker (1996) Commodifying business and accounting education: The implications of accreditation. *Critical Perspectives on Accounting*, vol. 7, p. 215-225

Eaton, J.S. (2007a) Consequences of the Commission on the future of higher education: Where do we stand? *Inside Accreditation*, vol. 3(2). Retrieved from http://www.chea.org/ia/IA_033007.html

Eaton, J.S. (2007b) Assault on accreditation: Who defines and judges academic quality? *Liberal Education*, vol. 93(2), p. 2-3

Eaton, J.S. (2010) "Accreditation and the Federal future of higher education", *Academe*, vol. 9(5). Retrieved from http://www.aaup.org/article/accreditation-and-federal-future-higher-education#.VGGaDkuBEpE

European Foundation for Management Development (2015) EQUIS – EFMD Quality Improvement System. Retrieved June 28, 2015 from https://www.efmd.org/index.php/accreditation-main/equis

Hedin, S.R., C.H. Barnes & J.C.H. Chen (2005) AACSB 2003 accreditation standards: Impact on continuous quality improvement. *International Journal of Services and Standards*, vol. 1(3), p. 358-378

Hoecht, A. (2006) Quality Assurance in UK Higher Education: Issues of Trust, Control, Professional Autonomy and Accountability. *Higher Education*, vol. 51(4), p. 541-563.

Hommel, U. & C. Lejeune (2013) Major disruption ahead. *EFMD Global Focus*, vol. 7(2), p. 10-13

Jaschik, S. (2009, June 29) The evidence of Online Education. *Inside Higher Ed*. Retrieved from https://www.insidehighered.com/news/2009/06/29/online

Julian, S.D. & J.C. Ofori-Dankwa (2006) Is accreditation good for the strategic decision making of traditional business schools? *Academy of Management Education and Learning*, vol. 5(2), p. 225-233

Kezar, A. (2014, April 11) Innovator or Protector of the Status Quo. Inside Higher Ed, Retrieved April 20, 2017 from https://www.insidehighered.com/views/2014/04/11/accreditation-pushes-colleges-innovate-not-stagnate-essay.

F. King Alexander, F. (2000) The Changing Face of Accountability: Monitoring and Assessing Institutional Performance in Higher Education. *Journal of Higher Education*, vol. 71(4), p. 411-431.

Kyle, G.J., Nissen, L., & Tett, S. (2008). Perceptions of prescription medicine sample packs among Australian professional, government, industry, and consumer organizations, based on automated textual analysis of one-on-one interviews. *Clinical Therapeutics*, vol. 30(12), p. 2461-2473

Lau, K., K. Lee & Y. Ho (2005) Text mining for the hotel industry. *Cornell Hotel and Restaurant Administration Quarterly*, vol. 46(3), p. 344-362

Lejeune, C. & A. Vas (2009) Organizational culture and effectiveness in business schools: A test of the accreditation impact. *Journal of Management Development*, vol. 28(8), p. 728-741

Lowrie, A. & H. Willmott (2009) Accreditation Sickness in the Consumption of Business Education: The vacuum in AACSB standard setting. *Management Learning*, vol. 40(4), p. 411-420

Osbaldeston, M. (2014) The challenges facing business school accreditation. *EFMD Global Focus*, vol. 8(3), p. 8-12

Pringle, C. & M. Michel (2007) Assessment practices in AASCB-accredited business schools. *Journal of Education for Business*, April/March, p. 202-211

Quinton, S. (2014) What Rubio got wrong about college accreditation, *NationJournal.com*. Retrieved November 11, 2014 from http://www.nationaljournal.com/next-america/education/what-rubio-got-wrong-about-college-accreditation-20140217

Rivard, R. (2013, April 30) Duke Faculty Say No. *Inside Higher Ed*. Retrieved January 5, 2015 from https://www.insidehighered.com/news/2013/04/30/duke-faculty-reject-plan-it-join-online-consortium

Ruscio, K.P. (2013) What does it mean to be a teacher-scholar? *Peer Review*, vol. 15(3). Retrieved from http://www.aacu.org/peerreview/2013/summer/ruscio

Saloner, G. (2013) The business of change. *EFMD Global Focus*, vol. 7(1), p. 8-13

Scherer, R.F., R.G. Javalgi, M. Bryant & O. Tukel (2005) Challenges of AACSB International accreditation for business schools in the United States and Europe. *Thunderbird International Business Review*, vol. 47(6), p. 651-669

Shinn, S. (2013) Bringing ideas to market. *BizEd*, vol. 12(6), p. 31-34

Smith, A.E. & M.S. Humphreys (2006) Evaluation of unsupervised semantic mapping of natural language with Leximancer concept mapping. *Behaviour Research Methods*, vol. 38(2), p. 262-279

Stemler, S. (2001) An overview of content analysis. *Practical Assessment, Research & Evaluation*, vol. 7(17). Retrieved January 12, 2017 from http://pareonline.net/getvn.asp?v=7&n=17

Sullivan, R.S. (2014) How b-schools inspire innovation. *BizEd*, vol. 13(6), p. 18-20
Thomas, H., P. Lorange & J. Sheth (2014) Dynamic capabilities and the business school of the future. *EFMD Global Focus*, vol. 8(1), p. 6-11

Turpin, D. (2013) Challenges and opportunities in the new business education world. *EFMD Global Focus*, vol. 7(2), p. 6-9

Urgel, J. (2007) EQUIS accreditation: Value and benefits for international business schools. *Journal of Management Development*, vol. 26(1), p. 73-83

U.S. Department of Education. (2014) Accreditation in the United States. Retrieved December 17, 2014 from http://www2.ed.gov/admins/finaid/accred/accreditation.html#Overview

Zammuto, R.F. (2008) Accreditation and the globalization of business. *Academy of Management Learning and Education*, vol. 7(2), p. 256-268

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CAN ENGLISH LANGUAGE SKILLS IN BUSINESS CURRICULUM HELP IN AACSB ACCREDITATION?

Devi Akella, Albany State University

ABSTRACT

Globalization has had a significant impact on management education and curriculum across the world. To assess and guarantee quality education different accreditation bodies have come into existence. In business education, AACSB International (Association for the Advancement of Collegiate Schools of Business) is highly popular, with a total of 655 accredited institutions out of which 165 are outside of the United States. Its popularity can be attributed to its emphasis on quality standards pertaining to research, mission oriented strategic planning, faculty and student achievements. Globalization and internationalization of curriculum is also an important component integrated within these accreditation standards. Business schools have responded in a variety of ways to meet this global accreditation requirement, schools have study abroad programs, student and faculty exchange programs, international business as one of the business courses on its curriculum, and integration of international dimensions and issues within its business courses. This paper will examine a business school located outside USA and how one of its mandatory graduation requirement for its business students can be considered as internationalization of curriculum.

JEL: M19

KEYWORDS: AACSB, Quality Education, Globalization, Internationalization of Curriculum

INTRODUCTION

Globalization has had a significant impact on management education across the world. Globalization has been defined as "the economic, political, and societal forces pushing 21st century higher education toward international involvement" (Altbach and Knight, 2007: 290). Globalization has resulted in the emergence of an international higher education industry (Naidoo, 2006). Business schools across the world have been under pressure to improve their curriculum and teaching practices to produce business graduates who are equipped to function in a globalized environment. Quality assurance and continuous improvement policies have become indispensable practices of globalization (Van Damme, 2001). Several accreditation organizations have also emerged over the last few years to improve the quality of education. There are two types of external accreditations: mandatory and voluntary. Mandatory accreditation bodies are usually regulatory organizations like the national or regional governments. While voluntary accreditation are peer driven organizations which are not legally imposed and compulsory. A few of the voluntary accreditation agencies consist of AACSB International (Association for the Advancement of Collegiate Schools of Business), ACBSP (Accreditation Council of Business Schools and Programs), EFMD (European Foundation for Management Development) and AMBA (Association of MBAs). The elements of globalization and internationalization constitute important components of all these accreditation agencies. Internationalization refers to the "evolving awareness and acknowledgement by the manager/organization/country of the impact of non-domestic forces on its economic future and the translation of the latter into new attitudes and behavior regarding the establishment and conduct of transactions with those in, and from other countries" (Task Force, 2011: 7). "Globalization is an activity, [while] internationalization is a mindset" (Cavaliere, Glasscock and Sen,

2014: 162). Like for instance, AACSB promotes the importance of international business and global concerns within the business curriculum (Cavaliere, Glasscock and Sen, 2014). Other examples of internationalization of curriculum include study abroad programs, student exchange programs, integrating an international dimension in the business courses being offered etc. However, an undeniable fact is, majority of the examples generated are appropriate only for US based business schools. This paper will discuss how curriculum could be considered international in a business school located in the West Bank region, also known as Palestine. This paper will contribute in the areas of AACSB accreditation, globalization and internationalization of curriculum. A case study will be presented to exemplify how curriculum could be internationalized within business degree programs. In the conclusion, the author will provide suggestions for further research to improve management education and internationalization of business curriculum.

LITERATURE REVIEW

Globalization, diversity and cross cultural issues have become indispensable elements of the corporate world. Therefore, naturally these factors are also the driving forces for all business schools and management curriculum. AACSB has been emphasizing that all its member schools prepare business graduates who possess skills and knowledge to survive in this new global business environment. "…globalization is a driver of change that cannot be ignored…Business schools that fail to adapt to that reality do so at their own peril" (Task Force, 2011: 3-4). Different institutions have adopted different internationalization strategies to meet these new global requirements. The focus is on "a school's ability to export and operate abroad..." (Bryant, 2013: 159). International business and international management have become an integral component of business curriculums. Business schools have entered, into partnerships, with schools abroad to exchange students and faculty or to allow their students a chance to study abroad over the summer semester. Partnerships have also been entered to share research and other similar initiatives. Efforts have been made to incorporate international dimensions or to enhance the international content in all existing business courses. Others have used instructional technology to combine classes between universities located in different parts of the world. To facilitate student interactions in the form of discussions, shared assignments and research projects. To allow virtual guest lectures from faculty or corporate figures from an international background or organization. Some have used experiential pedagogies like simulations to introduce business students to cross cultural differences and their impact on business corporations. Or have encouraged their students to use various internet resources like wikis, blogs and other information sources to learn about international trends and global scenarios. Business faculty have also involved their local international community in their surrounding counties by inviting them into their classrooms. Students have been given an opportunity to interact with these local small scale entrepreneurs and to listen to their experiences in setting up and in the day-to-day management of their businesses. Students have been encouraged to investigate international aspects, international issues and practices through in-class graded research projects. Students have been shown videos and documentaries which deal with cross cultural practices and diversity issues.

Another aspect of globalization could be familiarity with foreign languages. Unlike European students, it is rare for business students in US to be fluent in two languages. Only 18 percent of the Americans can speak two languages as compared to 53 percent of the Europeans (Altschuler and Skorton, 2012). As part of the internalization of curriculum drive, 71 percent of the deans of AACSB schools have considered making foreign language a business school requirement (Rogers and Aro, 1998). However, inspite of, acceptance of globalization and internationalization of curriculum, English remains the language of the global world and international commerce. English is being increasingly recognized as the "de facto language of the business" (Neely, 2012 as cited in Cavaliere, Glasscock and Sen, 2014: 163). English is the language of international economy. "Its image of modernity, power and internationalism is becoming ever more entrenched and the financial incentives for speaking it ever more firm …" (Johnson, 2009: 135). English is a language which is being used across cultures and between cultures as well. It allows the

user international image and international understanding. It guarantees corporate survival globally. Students across the world need to show proficiency in English language to get admitted into management programs in USA. TOFEL and ILETS scores are needed to apply for admission to management programs offered by US based schools. This poses interesting challenges for business schools located outside US and to their business curriculum. Business schools in Japan, China and Korea require their business graduates to be fluent in English language. In other words, for foreign universities, preparing their business graduates for the global economy would now also mean them being aware and fluent in English language. Some business schools have even made it a mandatory requirement for degree graduation. However, "…precious little academic…attention has been directed to the rise of English language especially in regionally specific contexts" (Johnson, 2009: 142). There are very few empirical case studies on how this language could be integrated into business curriculums. Also, could integration of English language as a part of business curriculum and its mastery by business students be a demonstration of meeting AACSB globalization and internationalization of curriculum quality standard requirement also remains unanswered? This paper seeks to discuss this perspective using a case study of a business college functioning within the wider umbrella of a university located in West Bank region, also known as Palestine.

DATA AND METHODOLOGY

Number of business schools are situated in Palestine, also known as the West Bank region of Israel. There are business schools in Jerusalem, Bethlehem, Nablus, Jericho, Hebron and Birzeit. All these business schools possess mandatory accreditation provided by the Palestinian Education Ministry. The admission requirements for students to be admitted to the Bachelor degree program in business consists of possessing a certain grade in the high school exam known as Tawjihi. Successful passing of Tawjihi leads to awarding of a high school diploma in Palestine. Majority of the schools in the Palestine region teach in Arabic language with a few exceptions in the form of private schools like the Friends School in Ramallah district. Therefore, most of the high school graduates lack fluency in English language. This did not pose much of an issue earlier for the universities. Majority of the universities in Palestine still use Arabic as a medium of instruction. However, with recent emphasis on business school rankings, quality assurances and assessment procedures. Business schools in Palestine have been forced to reflect on their curriculum and teaching practices. This paper will examine the scenario of a business school affiliated with a leading Palestinian university. The business school has very good rankings in the Arab world. The business school referred to as "college" in this paper draws upon the local Palestinian and Arab population residing in the West Bank. The college is currently the largest within the university with around 2000 students. At the undergraduate level, there are 837 male students and 1161 female students. At the graduate level, the college has 312 students consisting of 155 males and 157 females. The college has six undergraduate programs and two master programs, MBA and Economics, each managed by four departmental heads and one program director. The third master level program, Executive Master of Business Administration (EMBA) started in Spring 2017. There are five structural divisions under the Dean: Business Administration and Marketing, Finance and Banking, Accounting, Economics and the MBA. The MBA has 210 students and the MA in Economics has 102 students. To meet both local and international competition, the college strives to improve its quality both at the faculty and curriculum levels. In the last few months, the college decided to aim for international accreditation. The dean of the college plans to apply for AACSB accreditation in the next few semesters. The college undertook a comprehensive self-study to review its readiness for AACSB accreditation on the existing fifteen standards.

To meet the challenge of globalization and AACSB accreditation, the college has realized the significance of English language. To allow a wider scope for local businesses, tourism industry and employability as to where their business graduates are concerned, the college decided to make English language an integral part of their business curriculum. The college now operating within the framework of its mission and vision statements, strives to produce business graduates who are able, to communicate fluently in English

language. The faculty of the college is now required to teach in English, textbooks are in English language and all course materials consisting of videos, case studies and other class activities are in English as well. But a major hindrance to changeover to English medium came in the form of students. Students enter the college with English language skills at varying levels. These students are a mixed product of private and public school education systems. While some students are, able to converse fluently in English, others have severe language difficulties.

The college decided to make it mandatory for all business students to first learn and master English language before taking business related courses. Successful completion of these language courses has also become a graduation degree requirement. Students are required to provide their English proficiency levels at the time of their admission to the university. Based on their proficiency levels students are categorized into A0, A1, A2, B1 or B2 levels and are then required to take specific English language courses [see Table 1]. Students enter the college with English language skills at either A0/A1 or A2 level. Some enter at B1 and B2 levels. The college requires all students to register for English language courses and reach the level of C1 before taking any business courses. A0/A1 students need to complete 420 hours of instruction in English language. While A2 level students need to complete 280 hours of English language instruction. Students in B1 level need to finish 280 hours of English language instruction. While students in B2 level need to complete 140 hours of English language instruction. Depending on the student entry level, these English language classes consist of 12 to 4 credit hours of the degree program.

Table 1: English Speaking Requirements

	Student Entry Level			
Semester	**A0/A1**	**A2**	**B1**	**B2**
1st	ENGC1001	ENGC1201	ENGC2201	ENGC2203
2nd	ENGC1002	ENGC1202	ENGC2202	ENGC2204
3rd	ENGC1201	ENGC2201	ENGC2203	
4th	ENGC1202	ENGC2202	ENGC2204	
5th	ENGC2201			
6th	ENGC2202			
Exit level	B2	B2	C1	C1
Total hours of Instruction	420	280	280	140
Credit hours	12	8	8	4

Reference: Birzeit University Portal Ritaj. This table shows the English-speaking courses which students need to take depending on their levels of English speaking proficiency. Students with minimal proficiency are categorized as A0/A1 and need to take a maximum of 12 hours while students with high levels of proficiency are categorized under B2 and need to pass 4 hours of language speaking skills.

Students are exposed to different levels of English communication courses which ensure students master English language [see Table 2 for detailed descriptions of the courses]. ENGC1001 and ENGC1002, English Communication Elementary I and II are the most basic English courses offered to the college's business students. These courses are the lowest level providing students with basic command of English, ability to understand the basic everyday expressions, interact in a simple manner and start applying grammatical structures. At the next level, A2, ENGC 1201 and ENGC 1202, English Communication Pre-Intermediate I and II exposes students to a more advanced level of English.

Table 2: English Language Course Descriptions

Entry Level (CEFR)	Level	Course Name and No.	Course Description	Total Instruction Hours	Actual Cr. Hrs (Fees Equivalent in Cr.Hrs)
A1	A1. 1	ENGC 1001 English Communication: **Elementary I**	English 1001 and English 1002: non-credit beginners' courses offered to students who are placed in A0 or A1 on entry assessment test; lowest level of generative language use; provides students with basic command of English; integrates the four skills; listening, speaking, reading and writing;	Face-to-face 2 hrs session per week Online-3 hrs per week	Zero-credit hours (fees equivalent to 3cr hrs)
	A1.2	ENGC1002 English Communication: **Elementary II**	helps students do the following: understand and use familiar everyday expressions and basic phrases; make simple introductions, ask and answer simple questions; interact in a simple way; able to use simple grammatical structures. **Prerequisite for ENGC1001: Assessment test (A0/A1 score) Prerequisite for ENGC1002: ENGC1001**	Face-to-face-2 hour session per week Online-3 hrs per week	Zero-credit hours (fees equivalent to 3cr hrs)
A2	A2. 1	ENGC1201 English Communication **Pre-Intermediate I**	English 1201 and 1202: Two-credit hour courses that integrate the four skills; listening, speaking, reading and writing that help students do the following: Understand sentences and frequently used expressions related to areas of most immediate relevance (basic personal and family information, local geography, employment); communicate in simple and routine	Face-to-face-2 hour session per week Online-3 hrs per week	2-credit hours ((fees equivalent to 3cr hrs)
	A2.2	ENGC1202 English Communication **Pre-Intermediate II**	tasks requiring simple and direct exchange of information on familiar and routine matters; describe background, immediate environment, interests or activities; use simple structures accurately. **Prerequisite for ENGC1201: Assessment test (A2 score) or ENGC1002 Pre-requisite for ENGC1202: ENGC1201**	Face-to-face-2 hour session per week Online-3 hrs per week	2-credit hours ((fees equivalent to 3cr hrs)
B1	B1. 1	ENGC2201 English Communication **Intermediate I**	English Communication 2201 and 2202: Two-credit hour courses; integrate the four skills; students can understand the main points of clear standard input on familiar matters regularly encountered; produce a simple connected text on topics which are familiar or of personal interest, describe experiences and events, dreams, hopes and ambitions and briefly give reasons and explanations for opinions and plans.	Face-to-face-2 hour session per week Online-3 hrs per week	2-credit hours ((fees equivalent to 3cr hrs)
	B1.2	ENGC2202 English Communication **Intermediate II**	**Prerequisite for ENGC2201: Assessment test (B1 score) or ENC1202 Pre-requisite for ENGC2202: ENGC2201**	Face-to-face-2 hour session per week Online-3 hrs per week	2-credit hours (fees equivalent to 3cr hrs)
B2	B2. 1	ENGC2203 English Communication **Upper Intermediate I**	English Communication 2203 and 2204: Two-credit hour courses that focus on effective argument. Students are able to: account for and sustain their opinions in discussion by providing relevant explanations, arguments and comments; understand the main ideas of complex texts on both concrete and abstract topics, including technical discussions in their	Face-to-face-2 hour session per week Online-3 hrs per week	2-credit hours (fees equivalent to 3cr hrs)
	B2.2	ENG2204 English Communication **Upper Intermediate II**	field of specialization, interact with a degree of fluency and spontaneity that makes regular interaction with native speakers quite possible without strain for either party; produce clear, detailed text on a wide range of subjects and explain a viewpoint on a topical issue giving the advantages and disadvantages of various options. **Prerequisite for ENGC2203: Assessment test (B2 score) or ENC2202 Prerequisite for ENGC2204: ENGC2203**	Face-to-face-2 hour session per week Online-3 hrs per week	2-credit hours (fees equivalent to 3cr hrs)
C1		ENGL 233 Writing I	Description as before – no change **Prerequisite: Assessment Level (C1)**		

Reference: Birzeit University Portal Ritaj. This table provides a description of the various English language speaking courses and the total number of hours of instruction.

Students are now able to use English language to express themselves, their views and opinions about their family, themselves, immediate environment and local business practices both orally and in written form. Students at the B1 level have to pass ENGC 2201 and ENGC 2202, English Communication Intermediate I and II which allows students to make connections between their experiences in written text and oral expressions and expand their opinions and plans. While students who enter at the B2 level take ENGC 2203 and ENGC 2204, English Communication Upper Intermediate II courses. Students who complete these two courses are able to orally and in written form express themselves in detail, argue, understand and comment on abstract topics and texts and interact spontaneously with no hesitation or issues. At the most advanced level C1, students have to complete ENGC 233 English Writing 1 which provides them with skills to write business reports and letters.

After successful completion of these mandatory English language courses, students gradually progress towards the business courses. Students now study business courses in English, assimilate information taught in the classrooms and interact with their peers and teachers in English language. In other words, business graduates of the college are prepared for the global economy, to take up studies outside Palestine and seek jobs globally. Therefore, mandatory English communication courses which are also a graduation degree requirement can be interpreted as internationalization of curriculum.

Usefulness for other Business Schools

The model discussed in this paper would be useful for business schools in countries such as China, Japan, Korea and parts of Africa where English is still not widely spoken or used, with most of the instruction at the school levels taking place in national languages. The integration of English speaking skills within the business curriculum at a college in Palestine could be successfully applied to other non-US business schools globally. All interested business schools just need to assess their students' proficiency levels to categorize them into different grades requiring them to take pre-determined number of English speaking courses and credit hours. Students English language skills would further be honed with gradual introduction of all subjective instruction in English. They would be able to understand, speak and communicate effectively in English on completion of their bachelor degree programs.

Students thus would no longer need to take English speaking classes before traveling abroad, or applying for further studies to USA or when considering a position outside of their countries. It could be a component of their degree programs. Regardless of their medium of instruction at the school level, all students could now be provided with an opportunity to acquire a global language which could provide them with an advantage in their future careers. Further just as offering foreign languages has become an integral element of business curriculum in US based schools. And has been considered as demonstration of meeting the global and internationalization component of the AACSB accreditation requirements. Similarly requiring business graduates to master English language in non-US schools could be considered as fulfillment of the global and international curriculum element of AACSB standards.

CONCLUDING COMMENTS

Globalization and internationalization have become integral elements of accreditation standards of business accreditation bodies like AACSB International. Business schools already members or aspiring to be members of AACSB International need to demonstrate evidence of internationalization of their business curriculum and degree programs. Different methodologies have been adopted by different schools. For instance, study-abroad programs, faculty and student exchange programs, integrating international dimension within the business courses or using technology to widen student exposure to different forms of culture. However most of these methods are appropriate for US based schools. There is less literature on how schools outside US can incorporate international dimension into their degree programs.

With advent of globalization, the emphasis on English language has increased. English has been universally accepted as the language of the world and to succeed globally one needs to know it. Knowledge and fluency of English language has been cited as valuable to succeed in today's global economy. This paper has contributed in the areas of internationalization of curriculum by examining how a business school, in Palestine has integrated English communication courses within its business curriculum to churn out business graduates who are globally prepared. The business graduates of the college need to become fluent in English language, acquire business knowledge and skills to be able to graduate. These graduates can now function outside of Palestine and the Arab world. Ability to communicate in an international corporate language gives them the power to be successful and internationally mobile. They are competitive in the world market, flexible with regards to job locations and further education opportunities. Future studies could examine the importance of English language and its integration into the curriculum and daily lives of the business graduates. The usefulness of English language could also be investigated from the viewpoint of business graduates and business students enrolled in AACSB International accredited non-US business schools as well.

Further studies could also focus on how non-US business schools have met the global and internationalization of curriculum aspect of the AACSB International. The focus could be on methods used other than study abroad programs and student and faculty exchange programs.

REFERENCES

AACSB International Globalization of Management Education Task Force (AACSB Task Force). 2011. *Globalization of Management Education: Changing International Structures, Adaptive Strategies and the Impact on Institutions.* Retrieved May 27th 2014, from http://www.cfbsd.ca/Resources/Documents/AACSB%20Education%20Task%20Force%20Report%20-%202011.pdf.

Altschuler, G., & Skorton, D. (2012). "America's Foreign Language Deficit", *Forbes.* Retrieved May 27, 2014 from http://www.forbes.com/sites/collegeprose/2012/08/27/americas-foreign-deficit.

Altbach, P. G., & Knight, J. (2007). "The Internalization of Higher Education: Motivations and Realities", *Journal of Studies in International Education*, 11 (3-4), 410-420.

Bryant, M. (2013). "International Accreditations as Drivers of Business School Quality Improvement", *Journal of Teaching in International Business*, 24: 155-167.

Cavaliere, F. J.; Glasscock, K., & Sen, K. (2014). The Englishnization of Business: Does this Help or Hinder Teaching Global Business? *Education,* 135 (2), 161-168.

Johnson, A. (2009). "The Rise of English: The Language of Globalization in China and the European Union", *Macalester International*, 22 (131-167).

Naidoo, V. (2006). "Transnational Higher Education: A Stock Take of Current Activity", *Journal of Studies in International Education*, 5 (3), 324.

Rogers, B., & Aro, J. (1998). "Language Requirements for Baccalaureate Degrees in AACSB-Accredited Schools: Deans' Opinions", *Journal of Education for Business*, 73 (6).

Van Damme, D. (2001). "Higher Education in the age of Globalization: The Need for a New Regulatory Framework for Recognition, Quality Assurance and Accreditation Introductory Paper", *UNESCO Expert Meeting*, Paris, France.

BIOGRAPHY

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LONG-TERM PERFORMANCE AND POTENTIAL OF A STUDENT-MANAGED PEER-TO-PEER LOAN FUND

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Andrew R. Crosby, Four Horsemen Investments

ABSTRACT

In 2009, students at the University of Puget Sound started a unique student-managed fund focused on peer-to-peer (P2P) loans. Using the online Prosper and Lending Club P2P platforms, students are able to screen and evaluate peer borrowers' applications, which they may choose to fund with as little as $25 each. The consumer-oriented nature of the loans and the small investments required have made P2P lending an attractive option for a small student portfolio managed outside an endowment. In this paper, we describe our experience running this fund, which has consistently returned about 6% per year. We also discuss the potential for continued good performance, which is clouded by our increasing default rate and decreasing access to new loans. Institutional investors have moved in—and overrun—the P2P space. We conclude that the market is no longer as accessible or potentially profitable a mechanism for student experiential learning as it was when we began our fund.

JEL: G21, M2, A2

KEYWORDS: Peer-To-Peer Lending, Student-Managed Funds, Microcredit

INTRODUCTION

Peer-to-peer (P2P) lending was supposed to "democratize" lending (Herzenstein, *et al.*, 2008). It was supposed to allow a dentist from Wisconsin to fund a home improvement project for a do-it-yourselfer in Arizona, improving the rates for each by cutting out the institutional middleman. For our small liberal arts university in Washington state, P2P actually did even more: it democratized student-led investing. Our school was unable to support a traditional student managed fund (SMF), especially one large enough to focus on debt. In the P2P market, however, we were able to create an SMF that provided meaningful opportunities for both analysis and diversification. Our P2P SMF is, to the best of our knowledge, unique. In this paper, we describe our fund, which we started in 2009—the very beginning of the P2P explosion. We have invested in almost 500 loans using both the Prosper and Lending Club platforms. About 10% of those loans defaulted. We evaluate the characteristics of those bad loans, and find evidence consistent with other P2P studies (for example, that loans for debt consolidation are overrepresented among bad loans). However, unlike prior work, we are able to compare results from two platforms. We also report on our realized returns, which have been consistently above 50 bp per month. However, our ability to maintain our performance is threatened by structural changes in the P2P market, which has become more opaque for retail lenders as it has been overrun and co-opted by institutional money. The paper proceeds as follows. In the next section, we link our work to prior research on student-managed funds and peer-to-peer investing. We then provide a brief background on our fund, before presenting summary statistics and return data for our performance to date. We also describe a default model that we have developed to help us choose our new loans. Finally, we conclude with a discussion of the challenges facing our fund from changes in the P2P market.

LITERATURE REVIEW

Our work adds to the prior literatures on student managed funds and peer-to-peer lending. We review relevant papers from both of these areas in this section. Student-managed funds are becoming almost *de rigueur* among business schools, as both graduate and undergraduate programs seek to offer opportunities for experiential learning. Since 1952, when the first student fund was established at Gannon University, the idea of letting students manage real money has spread to hundreds of schools. (See, for example, Peng, *et al.*, 2009, Clinebell, *et al.*, 2008, Lawrence, 2008, and Morgan, 2008, for discussions of the rapid growth of SMFs.) The framework for most of these funds is similar: they get substantial amounts of money from private donors or endowments, invest that money in equities, and tie student participation to structured curricula. Our fund is different on all counts. First, our fund is a debt fund. 82% of U.S. student-managed funds, on the other hand, invest in equity (Lawrence, 2008), not just because students may think equity is "sexier," but because corporate bonds are relatively illiquid, less covered by analysts, and traded in much larger round-lot sizes.

These sorts of hurdles help explain why only 6% of Morgan's (2008) sample funds and 3%— one fund— of Peng, *et al.*'s (2009) were fully fixed income, while at least 80% were equity-only.Second, our fund is small. Only two of Peng, *et al.*'s (2009) SMFs are even in our size category ("less than $25,000"), and they are almost certainly not debt funds, since debt funds are huge. Bonds trade in a market where transactions of $100,000 or less are "very small" (Estabrook, 2015), so a well-diversified portfolio of bonds must be many times larger than a comparable equity fund. For example, in Morgan's (2008) SMF sample, the debt funds were at least twice as large as his average equity fund. Almost 60% of his equity/debt funds were smaller than $1M, but none of the seven fixed-income funds was (including Iowa State University's fund, which topped the list at $100M). Since most SMFs are funded through their university's endowments or from individual donations (Peng, *et al.*, 2009), the scale required for fixed-income funds may put them out of reach for many schools. This is especially true for those institutions that restrict SMF size and growth so that donors will not worry that their contributions are managed by students (Gullapalli, 2006).

Finally, our fund is independent of our university. In the traditional SMF world, if a school does choose to make the large commitment necessary to fixed-income, it usually protects its investment by mandating significant risk constraints, strongly limiting student-managers' discretion. For example, all but one of Morgan's (2008) large equity/debt funds were restricted to investment-grade debt, while only the smallest funds were allowed to venture into more speculative issues. In addition to asset constraints, university-sponsored SMFs usually also restrict participation, often by requiring student managers to complete a formal program of degree-based or extracurricular instruction (Clinebell, *et al.*, 2008; Lawrence, 2008). In all cases, however, the university is intimately involved with the fund's operations, providing monitoring and professional oversight (including advisors' "veto power").

Again, our fund is different. It is run through a 501(c)(3) not-for-profit corporation that we set up in 2009. The company is completely independent of the university. Independence allows us to run the fund without oversight from university staff, without worrying about our impact on the university endowment, and without restrictions on our growth. Students write their own investment policy statement each year, and determine the payouts from our corpus (which we use to fund outreach efforts such as our textbook scholarship). They determine their risk appetite, and are able to adjust their investing on an ongoing basis is response to portfolio performance. (In contrast, the traditional SMF that our university is currently establishing will allow students no control over outflows, investment universe, or risk parameters.) Our students' entire attitude toward investing evinces real "skin in the game," since no one above them is micromanaging them (in fact, there *is* no one above them), and they know that their results directly affect their ability to do outreach. We would not have been able to create an independent, truly student-run fund using traditional bonds. However, we were able to do it using peer-to-peer (P2P) loans.

P2P loans are small enough to allow us to create a well-diversified portfolio even without institutional funding. These loans were conceived as a way for retail investors to lend to people seeking money for things like home improvement projects and weddings. Potential borrowers create a listing describing their funding request, posting that listing on an online platform like Prosper or Lending Club (LC). Lenders peruse these listings, bidding as little as $25 on those that they would be interested in funding. If a listing attracts enough bids to provide the requested amount, the listing becomes a loan. The loans are made by the platform itself (actually by an associated bank), which then issues "notes" to each participating lender for her bid amount. When borrowers make their monthly principal and interest payments to the P2P platform, the platform breaks them up and distributes them pro rata to the associated lenders. (See, for example, Berger and Gleisner, 2009; Herzenstein, *et al.*, 2008; Iyer, *et al.*, 2009; and Freedman and Jin, 2008a, for descriptions of early P2P markets.)

In the early days of Prosper, if a listing continued to draw bids after it was fully funded, the later bids served to lower the rate on the loan. Lenders learned to bid strategically in this auction process. Ceyhan, *et al.* (2011) studied this behavior, noting that lenders bidding early got the advantage of being high in the queue, but those waiting until the bidding was about to end could make more informed bids. The authors found three bidding spikes: when the loan was listed (and lenders were enticed by its novelty), just before the loan was fully funded (and lenders were encouraged by its likelihood of fruition), and just before bidding ended (when lenders really wanted a piece of the action, even if it drove down the loan rate). Now, this sort of bidding behavior is almost impossible, as institutional investors have entered the market and sophisticated automated investing allows institutions to skim off the best loans. "[S]ome [institutional] investors may attempt to minimize the time…to complete a purchase in order to beat other investors to the transaction… [I]nstitutional investors may use custom algorithms…to automatically review and purchase loans, often before most general investors are aware of the loan listing" (PwC, 2015; see also Cortese, 2014). Institutional skimming exacerbates the potential for moral hazard that has always been present in the P2P market.

Many authors have commented on this risk, as well as on the possibility for adverse selection (e.g., Iyer, *et al.*, 2009; Weiss, Pelger, and Horsch, 2010; and Berger and Gleisner, 2009; see also Chafee and Rapp, 2012, and Moenninghoff and Wieandt, 2013, for broad discussions of P2P risks). For example, platforms do not give lenders the actual credit scores of potential borrowers; instead, they assign a letter grade based on a proprietary model. This can create an incentive for lower-quality borrowers to choose the P2P market, so that credit grade sets are composed primarily of borrowers at the lower end of the relevant score range. Indeed, Freedman and Jin (2008a), in an exhaustive quantitative analysis of Prosper's first two years (2006-7), found that listed requests became increasingly risky over time. This is dangerous for the retail investors who lack the background to do rigorous quantitative credit assessment. However, Freedman and Jin also found that, despite the deteriorating listings, only increasingly good loans were actually being funded. Lenders were learning. They were also proving to be surprisingly adept at incorporating qualitative, "soft" data from listings into their credit decisions.

In the early years of P2P, platforms encouraged significant borrower/lender interaction, and borrowers were motivated to craft detailed, individualized loan requests. They could choose to add photos of their families, descriptions of their monthly budgets, and discussions of their reasons for asking for money. This sort of nontraditional, "soft" information was useful for both lenders and borrowers. Herzenstein, *et al.* (2008), using a sample of over 5,000 Prosper loans, found that borrower "effort" variables—the provision of detailed backstories and proposed budgets—contributed significantly to lenders' willingness to bid on loans. Almost 91% of their listings with this sort of soft data were funded. In fact, the authors seemed almost surprised to find that lenders in P2P markets were more influenced by a borrower's story than by the sorts of demographic variables (like sex and family size) that can make traditional banking discriminatory. They concluded that P2P markets encouraged "relational" lending, and offered a "particularly congenial venue" for providing credit to underserved groups (such as women) who might

otherwise turn to fringe providers like payday lenders. In addition, the potential for meaningful interaction was useful for the 5% of investors who were drawn to the peer market as a way to lend altruistically (Paravisini, *et al.*, 2010).

Iyer, *at al.* (2009) agreed that individual lenders on P2P platforms were able to make meaningful inferences about borrower credit quality using qualitative data from listings. Describing the P2P markets as "inherently competitive," with a hierarchy that is "completely flat," they suggested that this egalitarian structure might facilitate the incorporation of soft information. They estimated that nonprofessional lenders were able to use nontraditional data to divine about a third of the information that they would get from a traditional credit score. This was especially useful for assessing listings in the lower credit categories—perhaps counterbalancing some of the P2P market's potential for adverse selection. Pictures were an important part of borrower-provided qualitative data. Duarte, Siegel, and Young (2009) used pictures posted with Prosper listings to assess lenders' ability to assess trustworthiness from appearance alone. They found that "physiognomy-based proxies"—beyond just attractiveness—helped predict default, even in P2P markets where lenders already had access to detailed financial information on potential borrowers. Despite the potential value of soft data, the P2P platforms now allow much less of it. Listings have become depersonalized. There are no more narratives, pictures, or Q&A. As we evaluate our portfolio, then, we must focus on the more traditional credit variables; even if our early members relied on soft data when lending, we no longer have access to that qualitative information. We will discuss the implications of these data changes in the last section. First, however, we review our portfolio's structure and performance.

Portfolio Description and Summary Statistics

We started our Prosper portfolio in 2009. Two years later, we expanded to Lending Club, both to learn about another platform and to increase our opportunity set. To date, we have made 474 loans, ranging in size from $25 to $157. Table 1 presents a summary of our loan statistics. Loosely following Iyer, *et al.* (2009), we characterize our summary statistics as either standard banking variables ("hard" traditional credit data) or nonstandard variables ("soft" data). We further classify our loans by platform and by performance (defaulted or performing). Any loan that was late as of May, 2016 is in our default subsample. Starting with the traditional credit variables, we observe that borrowers with performing loans have higher revolving credit balances and current amounts delinquent, including much higher maximums for both values. These counterintuitive results may be an artifact of the bankruptcies in our default sample: borrowers whose loans are discharged in bankruptcy are highly likely to have their number and amount of current delinquencies reported as zero. However, performing borrowers have more open credit lines, lower bankcard utilization, and lower debt-to-income ratios, and are much more likely to make more than $50,000/year. More are homeowners. These differences among the subsamples are consistent with Iyer, *et al*.'s (2009) findings on the importance of these traditional variables in determining the interest rates set for early Prosper loans.

Table 1: Summary Statistics (Panel A)

		PROSPER		LENDING CLUB		ALL FUNDED
						Prosper Loans Iyer, *et al.* (2009)
		Defaults	**Nondefaults**	**Defaults**	**Nondefaults**	
General						
n		11	59	24	319	
credit score	mean	683.4	718.3	708.0	715.8	676.0
	dollar-weighted	684.8	717.8	713.0	715.1	
n		17	114			
credit grades:	AA	12%	13%			15%
	A	18%	26%	33%	46%	14%
	B	24%	29%	21%	26%	18%
	C	24%	22%	42%	23%	21%
	D	18%	7%	4%	5%	17%
	E	6%			1%	7%
	HR		3%			7%
Prosper score	median/mode	8/8	8/8	7/7&10	7/10	
	max/min	10/4	11/2	11/5	11/4	
	dollar-weighted median/mode	8/5	8/8	9/7	9/10	
Loan Outcomes						
n		17	114	24	319	
annual lender interest rate		16.68%	14.91%	11.27%	10.57%	16.60%
	standard deviation	6.1%	5.2%	3.55%	3.24%	6.8%
Standard variables						
n		17	113	24	319	
amount requested		$14,882	$11,909	$17,552	$16,595	$6,761
# of current delinquencies		0.2	0.1			0.8
amount delinquent		$84	$199			$855
	standard deviation	$268	$1,177			$4,504
	max	$1,096	$9,631			
# delinquencies (7 yrs.)		0.4	1.0	0.1	0.1	4.3
# public record requests (10 yrs.)		0.1	0.1	0.1	0.05	0.3
# public records (12 mos.)						0.03
# credit score inquiries (6 mos.)		0.9	0.9	0.6	0.6	2.4
total # credit lines		20	23	23	26	24
# current credit lines		9.2	9.9	N/A	N/A	9.7
# open credit lines		8.9	9.1	11.1	11.5	8.3
revolving credit balance		$11,120	$23,334	$15,600	$18,615	$16,773
	standard deviation	$9,799	$45,352	$10,942	$19,137	$38,030
	max	$34,019	$368,975	$46,768	$183,735	
bankcard utilization		48%	44%	N/A	N/A	54%
debt-to-income ratio		23%	18%	18%	17%	33%
length of credit history (mos.)		249	245	195	220	161
	standard deviation	131	89	74	89	86
	max/min	622/94	486/78	344/57	570/55	
% homeowners		59%	68%	67%	67%	48%
% self-employed		6%	8%	N/A	N/A	7%
% retired or not employed		6%			2%	3%
employment status (mos.)		126	96	72	73	23
annual income range:	$1-$24.99K		4%		2%	12%
	$25K-$49.99K	35%	12%	25%	20%	37%
	$50K-$74.99K	24%	28%	38%	28%	25%
	$75K-$99.99K	35%	31%	25%	28%	12%
	$100K+	6%	26%	13%	23%	10%

(continued on next page)

Table 1: Summary Statistics (Panel B)

		PROSPER		LENDING CLUB		ALL FUNDED
						Prosper loans Iyer, *et al.* (2009)
		Defaults	Nondefaults	Defaults	Nondefaults	
Non-standard variables						
listing category:	debt consolidation	47%	33%	50%	50%	26%
	credit card refi.	N/A	N/A	42%	30%	N/A
	home improvemt.	29%	35%	8%	5%	3%
	business		6%		0.3%	10%
	personal	6%	13%		2%	12%
	student		1%			2%
	auto		3%		0.3%	2%
	medical	N/A	N/A		0.9%	N/A
	other				2%	6%
	N/A	18%	10%			38%
individualized listing title		18%	51%			N/A
Previous prosper activity (through 2012)						
total # active loans		2	12			
total # loans		2	33			
average amount borrowed		$2,500	$5,823			
maximum amount borrowed		$3,000	$22,000			
avg. remaining principal balance		$1,864	$738			
avg. # on-time payments		13	22			
avg. # payments late (< 31 days)		1.0	0.4			

For clarity, entries for 0% are omitted. The delinquency and bankcard utilization comparisons are based on the Prosper data. Where we do not have comparable data for one platform, we show "N/A" for that platform. CREDIT SCORE: Both platforms report ranges for credit scores, although Prosper's are much wider: 4 points for LC and 19 points for Prosper. Prior to 2013, Prosper gives a "credit score history," and not every loan has a score listed. The counts are therefore smaller for this variable than for the Prosper sample as a whole. After 2013, "FICO08" scores are reported for all Prosper loans; ranges for these scores are not always consistent with the ranges given before 2013. On LC, the credit score ranges apply to listings; for loans, LC reports a single score. According to third-party sources, (e.g., http://www.doctorofcredit.com/use-lending-club-find-fico-score-range-free/m accessed 7-22-16), these are FICO scores of some type. CREDIT HISTORY: LC lists the number of delinquencies over the past two years; Prosper uses seven. CREDIT GRADE: Platforms issue grades based on proprietary models that change over time. Prosper grades from A to "high risk (HR)"; LC goes from A to G. On both platforms, grades below D are rare. EMPLOYMENT HISTORY: Prosper lists the number of months. LC gives annual terms between 1 and 9 years; anything less than 1 year is listed as "<1 year," and anything over 9 years is listed as "10+." We count months as 12*(# of years) for 1-9 years; 6 for "<1 year," and 120 for "10+ years." DTI: For missing values, we use 33%, the average from Iyer, et al. (2009). This value is higher than the average reported in Herzenstein, et al. (2008) and in Paravisini, et al. (2010)—16.5% for funded loans/23.8% for unfunded, and 12.8%, respectively—from the early days of Prosper. Freedman and Jin (2008a) note that DTI data may be unreliable because it is borrower-reported. Other self-reported variables include self-employment and retired/not employed.

One of the changes we have observed since 2009 is the increasing prevalence of debt consolidation loans. Our 2009 investment policy statement stipulated that we would not invest in these sorts of loans, and in 2011—when there seemed to be little else on Prosper—we moved most of our investing to Lending Club to increase our loan pool. However, since now almost 70% of Lending Club loans are for "refinancing or credit cards" (https://www.lendingclub.com/info/statistics.action, accessed 7/9/16), later member cohorts removed the prohibition on debt consolidation. Table 1 perhaps supports the initial members' position: half of our Prosper defaults and almost all of our LC defaults were debt consolidation/credit card refinancing loans. In contrast, only a third of Prosper's nondefaulting loans were refinancings. However, if refinancings are the majority of what we will have to choose from in the future, we must better understand the other listing features that correlate with default.

One of those features is loan size. While our sample is too small to detect significant differences, defaulted debt consolidation loans on Prosper (n = 8) are much larger than the other defaults (n = 9; p = 0.15). They have also grown larger over time: our first bad refi loan was for $6,000 in 2010; since 2014, all have been between $15,000 and $25,000. This rise may be partly a function of the platforms' rising maximums (Prosper started at a $25,000 maximum, which is now $35,000; LC's max is now $40,000). Nonetheless, the increasing prevalence of large debt consolidation listings is one of the reasons we now view the P2P market as less attractive. Size was not just bad for refi loans. In our portfolio, size was also

bad across the board. Defaulted loans were 25% larger than performing loans on Prosper, and 5% on LC. On Prosper, 63% of nondefaulted loans were for less than $15,000, while only 29% of defaulted loans were; 35% of bad loans were for at least $20,000, while only 17% of good loans were. Results like these may help explain Freedman and Jin's (2008a) finding that that lenders responded more negatively to larger loans in later Prosper "regimes" (sets of rules). They could not "identify if this result is driven by a convex learning path over time or some changes in how lenders respond to the signal of a large loan as more information is available about the borrowers asking for these large loans," but—either way—larger loans are more dangerous.

Amounts for loans that defaulted also seemed to be more aggressively determined. All of these loans were for dollar amounts in multiples of $500, and 71% were for amounts in multiples of $5,000. If we assume that very specific dollar amounts are chosen with a carefully considered purpose in mind (e.g., based on a bid from a home improvement contractor), then large, round-number loan requests may be considered more aspirational ("this sounds like enough") and therefore signals of less creditworthy borrowers. It is clear that size (a loan feature) cannot be divorced from credit history (a borrower attribute). In the literature, there are competing stories about the size/credit relationship. (For example, see Feng, *et al.*, 2015 and Herzenstein, *et al.*, 2008; see also Fenn, 2000, for a similar dynamic in the 144-A market.) Iyer, *et al.* (2009) suggest that large requests can be a good sign when coming from higher-quality borrowers, who may have other funding alternatives. On the other hand, large requests from lower-quality borrowers may be opportunistic and linked to higher default risk. (LC apparently prefers this latter sort of argument, since it automatically downgrades larger loans. For example, increasing the requested amount from $7,475 to $25,000 for a borrower with a 701 FICO score translates into a rating drop from B to C3.) The "general" section in Panel A of Table 1 provides our portfolio's credit breakdown. On both platforms, about half of our defaults (and 75% of our debt consolidation loans) were in grades C and below. Only 30% of our performing loans were rated this low. For A/AA loans, it is almost a mirror image: only 30% of our defaults are in this category, while 39% (Prosper) and almost half (LC) of our performing loans are. Our last two member cohorts deliberately concentrated their lending in C loans to improve returns, so we expect increasing defaults until these loans season. (We have found that our bad loans tend to default by month 10. See also Freedman and Jin, 2008b.)

Table 1 also reports average credit scores for our portfolio loans. Both platforms report ranges for credit scores. The average credit score for our samples was found by weighting the midpoint of a given range by the proportion of loans in that range. Since not every loan was assigned a score, this average is merely suggestive. (Using the lower bound might be preferable, given the evidence of adverse selection within credit categories found in Freedman and Jin, 2008b and Iyer, *et al.*, 2009. However, such an adjustment simply shifts all of the values down; it does not change their relationships.) The dollar-weighted average credit score weights each score-category midpoint by the proportion of total dollars lent. Prosper's highest score range in our sample is "778+"; we use 800 as the upper limit for this range, although the maximum FICO08 score is 850. Not surprisingly, loans that defaulted had lower credit scores than those that did not. The difference was much more pronounced for Prosper loans, however; credit scores for defaulted LC loans were much higher than their counterparts on Prosper, and therefore much closer to the scores on the nondefaults. The final credit measure in Table 1 is the "Prosper score." Prosper assigns each listing a number between 1 (worst) and 11 (best) meant to reflect the probability that a loan will go at least 60 days past due within its first twelve months. Again, this is a proprietary score, developed using listings from 2008-2011 (Prosper, 2016). To create a comparison statistic for LC, we assigned three LC ratings to a given number from 2-11 (e.g., A1, A2, and A3 to "11"; F3, F4, and F5 to "2"), and all of the G ratings to "1." (Of course, this mapping is simply suggestive.) Scores for both platforms are similar. However, we found a higher mode for nondefaults on LC than on Prosper; lower extremes for defaults on Prosper; and more differences in extremes between good and bad loans on Prosper.

To complete our review of Table 1, we note that bad loans were also much less likely to have individualized listing titles. These are listing titles that vary *in any way* from the standard loan categories provided by Prosper: they can vary as insignificantly as "debt consolidation *loan*" rather than the standard "debt consolidation," or they can be more personal (such as "daughter is getting married!"). As described earlier, in the early days of P2P lending, potential borrowers often provided pictures and detailed narratives to support their requests. These sorts of "effort" inputs provided useful information to lenders, especially for listings in lower credit categories (Iyer, *et al.*, 2009). However, the listing title is the last remnant of this more interactive P2P market, as pictures, narratives, friend/leader endorsements, and question and answer capabilities have been removed. In our sample, just over half of our nondefaulting borrowers made the effort to create their own title, while only 18% of our defaulters did. If we restrict our sample to 2009-12—after which this sort of signal disappeared in our sample—we find that 71% of good loans have individualized titles, while only 33% of bad loans did. As the supply side of the P2P market has become more institutional, it appears that the listings have become correspondingly more like commodities. We saw similar trends in the mortgage market prior to 2008.

Default Model

We have experienced increasing numbers of defaults in recent years. To help guide future members' investments, we developed a simple logit model linking observable listing variables with default probability. This model is meant only as a rough guide. Nonetheless, we expect that it will be user-friendly and helpful for our members. We discuss this model in this section. Based on the summary statistics in Table 1, we identified credit grade, annual income, the debt-to-income ratio, revolving credit balance, loan type, loan amount, and loan term as the variables most clearly related to loan performance. We did not include homeownership, although there is an argument that homeowners may be more stable and have demonstrated the ability to get credit. However, we do not see much effect from homeownership in Table 1. In addition, Herzenstein, *et al.* (2008) and Kumar (2007) find that homeownership is not a significant determinant of funding success, and Funk, *et al.*, 2011, cite evidence that home ownership does not significantly affect rates on funded loans.

Our final variable mix includes both borrower- and loan-specific inputs. We augmented our sample of 473 portfolio loans with a stratified random sample of 1,500 loans from Lending Club's database of funded loans from 2007-2011 (available at https://www.lendingclub.com/info/download-data.action): 750 defaulted loans (13% of the population of 5,627 loans) and 750 nondefaults (2% of the 34,159 loans, 96.5% of which were fully paid as of June, 2016). (We omitted one of our 474 portfolio loans here, because Prosper did not have complete information on its listing details.) Given that 9% of our portfolio sample was defaults, and that we are using 10 independent variables for our model, the resulting 1,973-item sample should be sufficient for our purposes (given a minimum sample size required of $10*(10)/(.09) = 1,154$; see Zaiontz, 2016). The results of our test are presented in Table 2.

The model is certainly adequate for our purposes. A chi-square test comparing the full model to an intercept-only model has a p-value $\ll .00001$ and a Nagelkerke R^2 of 0.241 (see Zaiontz, 2016). In our 2007-2011 sample, the model's sensitivity (true positive rate) is 57%, its specificity (true negative rate) is 84%, and its overall accuracy is 73%. These results are comparable to those from Serrano-Cinco, *et al.*'s, (2015) logistic default model, run on about 25,000 Lending Club loans; their accuracy was about 60% in their training sample and 75% in their test sample. Ceyhan *et al.*, 2011, also used stratified random sampling to test their logit models, finding 67% accuracy with their logit based on borrower and loan attributes

Table 2: Logit Default Model

	DESCRIPTION	COEFFICIENTS/VALUES
Logit Model Variable		
intercept		1.84
DTI	debt-to-income ratio	-3.12
purpose	1 for credit card or debt consolidation	1.28
credit grade=D or worse	1 if grade D, E, HR	2.53
credit grade=C	1 if grade C	1.60
credit grade=B	1 if grade B	1.43
loan size	natural log of amount borrowed	-0.47
revolving credit balance	natural log of current credit balance	-0.00004
income	1 if $75,000 or less	0.49
loan term	1 if 60 months	0.26
Statistics		
log-linear ratio R^2		0.146
Cox-Snell R^2		0.178
Nagelkerke R^2		0.241
sensitivity (true positive rate)		57%
positive predictive value		70%
specificity (true negative rate)		84%
negative predictive value		74%
overall accuracy		73%

Table 2 presents the results for a logit regression whose dependent variable is default probability. (We use realized defaults as a proxy for the ex ante default probability.) DTI, the debt-to-income ratio, is occasionally reported as "100000000%" on Prosper. For the 13 such cases in our portfolio (one default and 12 nondefaults), we substituted 33%, the average found in Iyer, et al. (2009). (We also tried substituting our Prosper portfolio's average DTI for the relevant year—information that would not be available to our members ex ante—and found similar results.) The purpose dummy equals one if the stated purpose for the loan is debt consolidation or "credit card"; almost half of our sample loans (981) fall into these categories, which we expect to be associated with poorer performance. The credit grade dummies equal one for their assigned grades (with "D or worse" handling everything below C), leaving grades A and AA to be picked up by the intercept. The annual income dummy is one for income of $75,000 or less. We chose to use a dummy here because Prosper only reports income ranges, not actual dollar amounts (and income can be unverified in any case); the $75,000 cutoff is based on Table 1, which shows that lower income ranges appear to have greater differential performance between defaults and nondefaults. Finally, the loan term dummy is one for 60-month loans, the longest possible term that a borrower can choose. Although the loan term and loan amount variables are strongly positively correlated (r = .31), we believe that there is marginal information that can be gleaned from the longer term: we expect longer loans to be riskier, and there is anecdotal evidence supporting that conjecture (see, for example, Renton, 2012).

To test the model out of sample, we also ran it on a sample of 1,500 Lending Club loans from 2015, split evenly between defaults and non-defaults. Since LC is now our primary platform, and more recent loans will reflect systematic changes on the platform, this is a more salient data set for our future members. We find a 67% true positive rate, a 54% true negative rate, 59% positive predictive value, and 62% negative predictive value. Accuracy was 60% (p-value << .00001), with a Nagelkerke R^2 of 0.87. Most of the coefficients have the expected signs. Longer term, lower credit grade, lower income, and debt consolidation purpose all predict higher risk of default. In contrast, DTI, loan amount, and revolving credit balance have negative coefficients. The last may be an artifact of the data scrubbing that occurs after bankruptcy. The negative effect of DTI is certainly counterintuitive. We note that, unconditionally, higher DTI is associated with default in the full 39,786-loan LC data set from 2007-11: DTI for defaults is 14.0%, v. 13.2% for nondefaults; p << .01. In our own portfolio, however, nondefaults had very slightly higher DTI, with a correlation coefficient between DTI and the default dummy of -0.03. In past research, DTI has not been found to be a particularly useful explanatory variable: for example, it was not one of the top 20 explanatory variables in Reddy's (2016) machine learning-derived model of Lending Club, nor was it significantly related to default probability in Kumar's (2007) study. To further examine the impact of DTI, we ran an (unreported) extension of the model using an interaction term between DTI and A-grade loans, based on Iyer, *et al.*'s (2009) finding that DTI is more informative (for *funding* success) in the higher credit grades. However, this enhancement had no noticeable effect on our results.

As for loan size, we note again that the theoretical relationship between size and risk is unclear. In Table 1, we saw that our portfolio's bad loans were larger than our good loans. In our default model's larger sample (as in Emekter, *et al.*'s, 2015, 64,000-loan LC sample), we see the opposite. Among these 1,973 loans, good loans were significantly larger for all but the lowest grades: from 17% higher for Bs to 29%

higher for Cs and As (p < 0.01). Only for the D grade are bad loans larger than good loans, and, even then, only by an insignificant 3%. Thus, the default model's positive link between size and good performance could be a reflection of the positive link between loan performance and credit grade.

More interestingly, the average size of the D loans was significantly higher than the average size of the other loan grades. This may reflect lower-quality borrowers' opportunism. On the other hand, if loan size is a positive signal among the lower-grade loans—as it appears to be in the higher grades—perhaps only larger requests are likely to be funded. Indeed, Herzenstein, *et al.* (2008) find that D and worse loans are much less likely than higher-grade loans to be funded (see also Weiss, *et al.*, 2010), so perhaps a lower-grade borrower's confidence to ask for a larger loan may mitigate his inherent funding disadvantage in this market. Serrano-Cinca, *et al.* (2015), discussing this murky size/credit relationship, conclude that "[w]hat matters is not only the size of the loan, but also the repayment capability of the borrower, and the loss given default." We expect all three of these features to collide for D-rated loans, given that we have found that lower-grade loans in our portfolio stop making contractual payments sooner than higher-grade loans do (see Livingston, 2017). To help us explore these links in our data, we added to our default model interaction terms between the log of the loan amount and the three grade dummies. The resulting logit (unreported) significantly improved over the original model (p = 0.0003). The worst loans had the strongest interaction effect: the coefficient on their interaction variable was 0.62 (compared to -.017 for C and 0.16 for B; the coefficient on D credit grade indicator actually switched sign to -3.26). Thus, while larger low-grade loans may be more likely to be funded, they are also more likely to default.

We would need to understand credit grade even if it did not interact with loan size. P2P platforms assign their grades using proprietary models based on traditional credit variables. For funding success, these "hard" variables are more "salient" for higher credit categories (Iyer, *et al.*, 2009). If they are also more salient for outcomes, then our logit model—which is heavily reliant on traditional variables—should perform better for the higher credit grades. However, our model actually provides more insight at the low end. While its accuracy does rise monotonically as we move up from D-or-worse (69% accurate) to AA/A (79%), the model is much more sensitive for the worst loans, with a true positive rate of 85%. In fact, the accuracy for the best loans is solely a function of the true negative rate of 99%; the model is unable to identify even one of the 99 of 492 top-grade loans that actually defaulted. Thus, at the top, our model gives us no more insight that a simple assumption that all top-grade loans do not default. However, for the worst loans, our model significantly improves upon an "all bad loans default" heuristic, doing a much better job of identifying the best of the worst.

One explanation for our failure to distinguish among performing and nonperforming high-quality loans is that we lumped all A loans together—A and AA on Prosper, A1-A5 on Lending Club. Given the adverse selection among borrowers documented by Freedman and Jin (2008b) and the varying default rates found within credit categories found by Iyer, *et al.* (2009), we should not expect all loans of the same grade to be equally likely to perform. As a quick check, we used our 1,500-loan LC sample to test the relative performance of different subgrades of A loans. We can strongly reject the hypothesis that all five subgrades perform the same way: we find no defaults among the 23 A1 loans, but 34 among the 91 A5 loans (40%). The number and percentage of defaults rises monotonically as subgrade level falls, and a chi square test of equal performance gives a p-value << .0001. Thus, we conclude that part of the poor true positive rate from our logit comes from a too-broad classification of higher-grade loans. We will therefore require our future members to consider subgrades of these loans as completely separate "risk buckets." Having surveyed our loan data and its default characteristics, we turn now to our realized returns.

Returns

Table 3 summarizes our returns from both platforms. For Prosper, we describe a census (all 131 loans) to provide a baseline. For LC, we use a comparison sample of 117 notes (34% of our LC loans). This LC sample closely matches the grade breakdown of the full 343-loan LC portfolio, and includes nine defaults (7.7%). The top panel shows gross return data by note. Each note's monthly returns—interest over prior principal balance—are averaged, then those note averages are averaged again by credit grade. The other three panels average by month, giving both gross returns (second panel) and net (last two panels). The final panel includes the effects of charge-offs, as well as of all fees. Average returns generally rise as grade falls. (On Prosper, the exception is caused by a single E loan, which returned more than the three HR loans during the three short months it performed before defaulting.) The returns by month are slightly higher (though more variable) than the per-note returns, so we do a bit better when loans remain active longer. Fees obviously have a significant impact on returns, decreasing average returns by an average of 8-13 bp/month—ranging from 8-18 bp/month on Prosper, and 3-11 bp/month on LC. Given the standard fee structure (about 1% per loan), fee burdens are generally higher at the better credit grades. Prosper's fee burden (defined as [1 – net return/gross return]) is higher than LC's for all grades except for the highest-rated A loans. Defaults have a profound effect, lowering both platforms' grade-weighted monthly averages by over 50 bp/month. However, even accounting for defaults, we generate weighted average returns in the AA-D grades of between 34 and 82 bp/month (on LC and Prosper, respectively).

If we aggregate the net returns (including charge-offs), we find portfolio-level monthly returns on Prosper that average 86 bp (maximum = 1.81%; minimum = -5.36%; standard deviation = 1.2%). LC's returns are lower but less variable, averaging 57 bp with a standard deviation of 0.7% (maximum = 1.08%; minimum = -2.28%). The chain-linked return over our full 78-month Prosper history is 93.27%, implying a geometric average monthly return of 85 bp and an effective annual rate of 10.7%; our 52-month LC history averages 56 bp/month, or almost 7%/year. Accounting for our deposits and withdrawals on Prosper, we find a money-weighted return (IRR) of 51 bp per month, for an EAR of 6.3%. Our returns align with those described in the literature. Freedman and Jin (2008a) use their performance model to estimate an expected net return on funded loans of about 6%/year. Paravisini, *et al.*'s (2010), using panel data from Lending Club, find that investors expect a high level of covariance between their P2P returns and the broad market—a covariance that translates into an average risk premium of 9%. The sample periods for these papers were 2006-7 (a market in which the S&P500's return was almost 7%, and the average three-year Treasury yielded about 4.5%) and 2007-8 (an extremely turbulent market), respectively. Nonetheless, their results and ours demonstrate that P2P lending provides investors a premium for the risk they bear.

This is inconsistent with the contention of Herzenstein, *et al.* (2008) that bank savings accounts are the relevant default option for P2P lenders. Table 3 makes clear that our loans are much riskier than savings accounts, consistent with Freedman and Jin's (2008a) description of P2P returns' being "more dispersed" (and less liquid) than CDs and T-bills. Given that well over half of LC's lenders—whose profile is young, male, single, urban, and of high net worth—report being interested in the platform because of the potential to earn high returns (Paravisini, *et al.*, 2010), it is important to recognize P2P lending as much riskier than simple saving, and to assess its returns accordingly.

Table 3: Return Summary

	BY NOTE: PROSPER					BY NOTE: LENDING CLUB				
	Mean	Standard Deviation	Max	Min	N	Mean	Standard Deviation	Max	Min	N
AA	0.76%	0.13%	0.93%	0.42%	18	0.52%	0.05%	0.58%	0.36%	14
A	0.95%	0.15%	1.24%	0.71%	32	0.64%	0.09%	0.75%	0.20%	39
B	1.19%	0.20%	1.67%	0.72%	37	0.96%	0.16%	1.17%	0.36%	29
C	1.48%	0.26%	2.30%	1.10%	29	1.07%	0.16%	1.40%	0.64%	28
D	1.95%	0.31%	2.59%	1.59%	11	1.27%	0.31%	1.64%	0.72%	6
E	2.83%	N/A			1	1.62%	N/A			1
HR	2.53%	0.22%	2.73%	2.22%	3					

	BY MONTH (GROSS): PROSPER					BY MONTH (GROSS): LENDING CLUB				
	Mean	Standard Deviation	Max	Min	N	Mean	Standard Deviation	Max	Min	N
AA	0.81%	0.22%	2.43%	0.00%	414	0.52%	0.18%	2.18%	0.00%	288
A	0.97%	0.29%	5.77%	0.00%	866	0.64%	0.09%	1.32%	0.00%	840
B	1.24%	0.33%	3.85%	0.00%	832	0.97%	0.23%	3.33%	0.00%	538
C	1.50%	0.55%	7.45%	0.00%	534	1.10%	0.36%	2.93%	0.00%	445
D	2.01%	0.71%	7.97%	0.00%	187	1.38%	0.40%	1.66%	0.00%	102
E	2.83%	0.46%	3.51%	2.20%	4	1.62%	0.03%	1.64%	1.52%	14
HR	2.51%	0.38%	3.73%	0.00%	74					

	BY MONTH (NET): PROSPER					BY MONTH (NET): LENDING CLUB				
	Mean	Standard Deviation	Max	Min	N	Mean	Standard Deviation	Max	Min	N
AA	0.73%	0.19%	2.21%	-0.39%	411	0.41%	0.26%	1.42%	-0.81%	288
A	0.84%	0.42%	5.77%	-5.96%	907	0.57%	0.16%	1.24%	-0.99%	839
B	1.05%	1.15%	2.69%	-24.82%	831	0.88%	0.25%	2.96%	-0.57%	536
C	1.41%	0.51%	6.87%	0.00%	534	1.05%	0.36%	2.74%	-0.62%	445
D	1.92%	0.68%	7.27%	-0.09%	187	1.35%	0.39%	1.63%	0.00%	102
E	2.74%	0.45%	3.40%	2.14%	4	1.58%	0.03%	1.60%	1.48%	14
HR	2.34%	0.60%	3.67%	0.00%	77					

	BY MONTH (NET, W/CHARGE-OFFS): PROSPER					BY MONTH (NET, W/CHARGE-OFFS): LENDING CLUB				
	Mean	Standard Deviation	Max	Min	N	Mean	Standard Deviation	Max	Min	N
AA	0.26%	6.75%	2.21%	-96.66%	411	-0.29%	8.36%	1.42%	-100%	288
A	0.64%	4.42%	5.77%	-100.0%	907	0.45%	3.48%	1.24%	-100%	839
B	0.82%	4.88%	2.69%	-95.88%	831	0.69%	4.36%	2.96%	-100%	536
C	1.23%	4.22%	6.87%	-95.39%	534	0.15%	9.56%	2.74%	-100%	445
D	1.51%	5.66%	7.27%	-75.12%	187	0.36%	10.04%	1.63%	-100%	102
E	-21.8%	42.47%	3.40%	-95.31%	4	1.58%	0.03%	1.60%	1.48%	14
HR	2.34%	0.60%	3.67%	0.00%	77					

This table presents the returns from all of our Prosper loans and from a sample of our LC loans. The top panel starts with the average return for each note, then averages those note returns by credit grade. The counts in this panel are the number of notes. The rest of the panels average by month, so they account for the different numbers of months over which different loans pay off. The counts for these panels are the number of months. The top two panels present gross returns, incorporating only interest inflows. The bottom two panels account for all fees, including late fees, service fees, "Prosper fees," and collection fees. The last panel also incorporates the write-off of remaining principal at default. Grade AA includes LC grades A1 and A2; grade A includes LC's A3 through A5. The LC sample was chosen by stratified random sampling. In this sample, all grades match their population values, except that high-A is slightly oversampled (12% in sample v. 11% in population) while low-A is slightly undersampled (33% v. 34%). This should lead to a slightly understatement of our chain-linked returns. Our 7.7% default frequency is slightly higher than the population's (7.3%).

CONCLUSION

We have presented default and return results describing the performance of our student-managed fund's peer-to-peer portfolio over its first seven years. Like all SMFs, our portfolio has given our student-managers a chance to run real money in real time. Unlike other SMFs, however, our fund is small and debt-focused. The P2P market has allowed our students to perform meaningful credit analysis, and the amortizing nature of the loans has ensured monthly cash flows that provide ongoing investment opportunities. Our fund is also unique in that it is structured as an independent 501(c)(3), offering student-managers much more autonomy and accountability than they would have under a traditional

university-embedded framework. However, the P2P market is "evolving" in ways that may make it less attractive to us going forward. First, the platforms have changed the way borrowers can present themselves and interact with lenders. Second, the market is being overrun by institutional investors, crowding out retail lenders like us. The changes are not independent; both are part of thecommoditization of P2P loans. The platform changes have eliminated many of the analytical opportunities that provided our student-managers with engaging, relevant experience. Borrowers no longer post narratives describing their requests and planned repayment budgets. They no longer post pictures. They no longer answer questions posed by potential lenders. Lenders are no longer able to bid for loans in auctions, a process that drove down rates for attractive borrowers. In short, the platforms have eliminated the ability of "peers" to use soft, qualitative information to assess borrowers' creditworthiness and to translate their opinions into lower rates for good borrowers. Given that lenders are able to divine meaningful insights from soft information (Iyer, *et al*., 2009; Herzenstein, *et al.*, 2008; Duarte, *et al.*, 2009), and that soft information is most useful when evaluating lower-rated borrowers (Iyer, *et al*., 2009), it is difficult to argue that the changes have improved market quality. If borrowers cannot signal, and retail lenders cannot screen, the potential for trust (and consciousness of kind and moral obligation) that can made these markets useful for both lenders and the underbanked is undermined. The demise of "non-hierarchical," "disintermediated," "egalitarian" lending will imply less credit access for those already poorly served by traditional banks.

Advocates of P2P's evolution would counter that what is lost in transparency has been made up in liquidity. As the platforms have matured, they have drawn the interest of institutional investors (Moenninghoff and Wieandt, 2013). According to Price Waterhouse Coopers, these institutions now account for about 80% of funding on the P2P platforms. One bank has been buying $2M per month since 2013; others have committing a total of more than $200M. These lenders crowd out "peer" lenders with their size, speed, and technology.   We cannot compete against these sorts of advantages, and—given the loans that are left—we are not sure we want to. We are therefore moving beyond the P2P market, especially the more opaque Prosper platform, and have added equities and Treasuries to our portfolio. As the institutions make the peer market more like the traditional lending market, they are forcing us to become more like a traditional student-managed fund.

REFERENCES

Berger, S.C. & Gleisner (2009) "Emergence of Financial Intermediaries in Electronic Markets: The Case of Online P2P Lending," *Business Research*, vol. 2(1), p. 39-65

Ceyhan, Simla, Xiaolin Shi, and Jure Leskovec (2011) "Dynamics of Bidding in a P2P Lending Service: Effects of Herding and Predicting Loan Success," Conference: Proceedings of the 20th International Conference on World Wide Web, WWW 2011, Hyderabad, India, March 28 - April 1

Chafee, Eric C. and Geoffrey C. Rapp (2012) "Regulating On-Line Peer-to-Peer Lending in the Aftermath of Dodd-Frank: In Search of an Evolving Regulatory Regime for an Evolving Industry," *Washington and Lee Law Review*, vol. 69(2), p. 485-534

Clinebell, John M., Douglas R. Kahl, David Redle, and Jerry L. Stevens (2008) "The Fiduciary and Legal Aspects of Establishing and Operating a Student Managed Investment Fund," working paper

Cortese, Amy (2014) "Loans that Avoid Banks? Maybe Not," *New York Times*, May 3

Duarte, Jefferson, Stephan Siegel, and Lance Young (2009) "Trust and Credit," working paper, February 17. Available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1343275

Emekter, Riza, Yanbin Tu, Benjamas Jirasakuldech, and Min Lu (2105) "Evaluating Credit Risk and Loan Performance in Online Peer-to-Peer (P2P) Lending," *Applied Economics*, vol. 47(1), p. 54-70

Estabrook, Rich (2015) "Diminished Liquidity in the Corporate Bond Market: Implications for Fixed Income Investors," Oppenheimer & Co., March 16

Feng, Yan, Xinlu Fan, and Yeujun Yoon (2015) "Lenders and Borrowers' Strategies in Online Peer-to-Peer Lending Market: An Empirical Analysis of PPDAI.com," *Journal of Electronic Commerce Research*, vol. 16(3), p. 242-260

Fenn, George W. (2000) "Speed of Issuance and the Adequacy of Disclosure in the 144A High-Yield Debt Market," *Journal of Financial Economics*, vol. 56(3), p. 383-405

Freedman, Seth and Ginger Z. Jin (2008a) "Dynamic Learning and Selection: The Early Years of Prosper.com," working paper, June 20

Freedman, Seth and Ginger Z. Jin (2008b) "Do Social Networks Solve the Information Problems for Peer-to-Peer Lending? Evidence from Prosper.com," NET Institute No. 08-43, November

Funk, Burkhardt , Alexander Bachmann, Alexander Becker, Daniel Buerckner, Michel Hilker, Frank Kock, Mark Lehmann, and Phillip Tiburtius (2011) "Online Peer-to-Peer Lending—A Literature Review," *Journal of Internet Banking and Commerce*, vol. 16(2), August

Gullapalli, Diya (2006) "They Give It The Old College Try: Funds Let Students Invest Millions," *Wall Street Journal*, July 14

Herzenstein, Michal, Rick L. Andres, Utpal M. Dholakia, and Evgeny Lyandres 2008) "The Democratization of Personal Consumer Loans? Determinants of Success in Online Peer-to-Peer Lending Communities" working paper, June

Iyer, Rajkamal, Asim Ijaz Khwaja, Erzo F. P. Luttmer, and Kelly Shue (2009) "Screening in New Credit Markets: Can Individual Lenders Infer Borrower Creditworthiness in Peer-to-Peer Lending," NBER Working Paper No. 15242, August

Kumar, Sanjeev (2007) "Bank of One: Empirical Analysis of Peer-to-Peer Financial Marketplaces," AMCIS Proceedings, AIS Electronic Library, 305, December

Lawrence, Edward C. (2008) "Student Managed Investment Funds: An International Perspective," *Journal of Applied Finance*, vol. 18(2), p. 67-83

Livingston, Lynda S. (2017) "Returns and Attribution from a Student-Managed Peer-to-Peer Loan Fund" *Accounting and Taxation*, forthcoming

Moenninghoff, Sebastian C.. and Axel Wieandt (2013) "The Future of Peer-to-Peer Finance," *Schmalenbachs Zeitschrift für betriebswirtschaftliche Forschung*, vol. 65(5), September, p. 466-487

Morgan, George (2008) "Fixed Income Student-Managed Funds: A Report on Recent Innovations," working paper

Paravisini, Daniel, Veronica Rappoport, and Enrichetta Ravina (2010) "Risk Aversion and Wealth: Evidence from Person-to-Person Lending Portfolios," *Management Science*, vol. 63(2), p. 279-297

Peng, Zhuoming, William P. Dukes, and Ronald Bremer (2009) "Evidence on Student-Managed Funds: A Survey of U.S. Universities," *Business Education and Accreditation*, vol. 1(1), p. 55-64

Price Waterhouse Coopers (2015) "Peer Pressure: How Peer-to-Peer Lending Platforms Are Transforming the Consumer Lending Industry," February. Available at http://www.pwc.com/us/en/consumer-finance/publications/peer-to-peer-lending.html

Prosper (2016). *Prosper Score.* Retrieved June 14, 2016, from the Prosper.com Web site: www.prosper.com/plp/general-prosper_score/

Reddy, Sriharsha (2016) "Peer to Peer Lending, Default Prediction—Evidence from Lending Club" *Journal of Internet Banking and Commerce*, vol. 21(3), December, p. 1-19

Renton, Peter (2012). *Lending Club Loan Length and Default Rate*. Retrieved June 22, 2016 from Random Thoughts Web site: http://andirog.blogspot.com/2012/06/lending-club-loan-length-and-default.html

Serrano-Cinca, Carlos, Begona Gutierrez-Nieto, and Luz Lopez-Palacios (2015) "Determinants of Default in P2P Lending," *PLoS One*, vol. 10(10), October, p. 1-22.

Weiss, Gregor N. F. and Pelger, Katharina and Horsch, Andreas (2010) "Mitigating Adverse Selection in P2P Lending – Empirical Evidence from Prosper.com," working paper

Zaiontz, Charles (2016) *Logistic Regression*. Retrieved June 22, 2016 from Real Statistics Using Excel Web site: www.real-statistics.com/logistic-regression/

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AN INTEGRATED SYSTEM OF EDUCATION: USING STRUCTURED LEARNING ENVIRONMENTS AND ASSURANCE OF LEARNING TO IMPROVE STUDENTS' HUMAN CAPITAL

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ABSTRACT

Students striving to acquire the capability of contributing to the modern global economy are neither clients nor customers of an educational institution. Rather, students are creators and consumers of their own human capital, the quality of which depends in part on the investment they and their institutions are willing to make in them as they progress through their education. Just as industry integrated quality control systems into its production processes to ensure high quality before the products were made available to potential customers, educational systems can do so too. We argue that the goals of an integrated system of education are not only to demonstrate learning on the part of students, but to provide information about the need, and opportunity, for remediation prior to completion of their chosen degree program. It is thus in the interest of students and their professors to continuously improve the quality of students' human capital to enhance the personal satisfaction of graduates and the satisfaction of their future employers. We offer a path to do so.

JEL: A2

KEYWORDS: Curriculum, Assurance of Learning, Quality Improvement

INTRODUCTION

Two reports document the business community's perception of a decline in the quality of potential employees' skill sets and readiness for work. The first report, *Are They Really Ready for Work?* (The Conference Board, 2006), suggests that respondents to the Board's survey found a large proportion of potential employees with high school or post-secondary educational credentials either deficient in overall preparation for entry-level positions or seriously deficient in key skills, such as written communication. The second report, *The Economic Impact of the Achievement Gap in America's Schools* (McKinsey and Company, 2009), suggests that "...the underutilization of human potential in the United States is extremely costly....Put differently, the persistence of these educational achievement gaps impose on the United States the economic equivalent of a permanent national recession. The recurring annual economic cost of the international achievement gap is substantially larger than the deep recession the United States is currently experiencing (a 6.3% decline in GDP in the fourth quarter of 2008" (McKinsey and Company, 2009, pp. 5-6). One potential explanation for the perceived deterioration in the quality of recent graduates' human capital relative to that of earlier graduates has been suggested by Arum and Roska (2011). These authors point to the emergence of a system of education where students are seen as clients/customers who demand the right to earn an educational credential without much effort on their part. In this paper we put forth a proposal to integrate a structured learning environment with assurance of learning to improve the quality of students' human capital.

We further suggest that prospective employers, students, disciplines and faculty could reap net benefits from implementing this proposal. To that end, in the literature review of the next section we provide evidence from several action research projects that found that students who are not ready for self-directed learning benefit from a structured learning environment. This is followed by a discussion of the elements of a structured learning environment and how to integrate a structured learning environment with a discipline's assurance of learning processes. Finally, we discuss the limitations our work, offer conclusions and suggest areas for future research.

LITERATURE REVIEW

In light of the criticism of the current education system discussed above, what is to be done? Like Arum and Roska, we reject the idea that students are clients/customers of the educational process. Instead, we argue (1) that students are investors in, and producers and consumers of their own human capital and (2) that the place to address the perceived poor quality of recent graduates' human capital is in the classroom and coursework of students. To that end, we conducted a series of action research projects that focused on student learning goals and outcomes. In particular, we sought to understand how to develop students' skills for life-long learning through increasing their potential for self-directed learning. Self-directed learning is "... a process in which individuals take the initiative with or without the aid of others in diagnosing their learning needs, formulating learning goals, identifying human and material resources, choosing and implementing appropriate learning strategies, and evaluating learning outcomes (Knowles, 1975, p. 18)." The evidence gathered in our action research project suggests that "... structure match enhances self-directed learning skills and that courses designed to enhance students' readiness for self-directed learning can do so (Dynan, Cate and Rhee, 2008, p. 96)." That is to say, students who are not ready for self-directed learning perform better in a structured learning environment. As students become ready for self-directed learning, the learning environment should become less structured.

In a second action research project we explored (1) the impact of regular (weekly) student writing (both structured and unstructured) assignments on student performance compared to the performance of students without regular writing assignments and (2) the potential links between writing assignments (both structured and unstructured) and Bloom's taxonomy of learning objectives (1956) (Dynan and Cate, 2009, p. 66). From the evidence gathered in this project we find: (1) that "... writing assignments improve student performance," (2) that "...structured writing assignments serve to improve student performance on lower-order learning assessment activities (i.e., multiple-choice examination focused on recall), particularly among students who were in the main not well-prepared for self-directed learning," and (3) that "... instructors should carefully assess the ability level of their class. Meeting the class where it is, the instructor can define the learning level he or she expects his or her students to achieve and design regular writing assignments that allow students to practice both lower-order and higher-order skills" (Ibid. p. 82).

A third action research project examined variables that were expected to develop self-directed learning skills in students, such as structured writing assignments. We drew three conclusions from this project: (1) that structured writing assignments positively impact student learning relative to unstructured writing assignments, and relative to no writing, (2) that structured writing assignments positively impact student learning and can enhance student readiness for self-directed learning, especially for those students who are not ready for self-directed learning, and (3) that students who are not ready for self-directed learning perform better in a structured learning environment (Cate and Dynan, 2010, p. 57). Collectively, the evidence gathered from our action research projects provide some support for the following conclusions: (1) that a structured learning environment is a useful intervention to support the development of human capital in the educational process, (2) that students who are not ready for self-directed learning experience significant improvement in their performance when instruction takes place in a structured learning environment, and (3) that as students' performance improves it becomes easier to nudge students into believing in the importance of mastering critical thinking, of acquiring a personally rewarding and

marketable competency-based skill set, and of becoming a self-directed learner, findings consistent with those of Dweck (2006) and Pohl (2000).

Discussion

Our research findings lead us to suggest that a structured learning environment is a classroom in which students realize that it is necessary for them to invest their time, talent and treasure in improving their human capital. A structured learning environment requires four specific activities by the instructor. The first is to administer pre-tests in the discipline and to assess the students' readiness for self-directed learning. Pre-testing establishes a baseline measurement of each student's prior knowledge of the discipline's basic principles associated with a specific course - what is the student's prior knowledge of American history? Of microeconomics? Of general chemistry?, and assesses each student's readiness for self-directed learning.

Each test is administered to each student in the course during the first week of class and, for the discipline test, may be developed in-house or purchased externally. In the case of readiness for self-directed learning we recommend the instrument developed by Giglielmino (1977). The second act is creating student learning outcomes (SLOs) based on Bloom's taxonomy for educational objectives (1956) as modified by Anderson and Krathwohl (2001) and Fink's taxonomy of significant learning (2003). A SLO is a measurable aspect of knowledge embedded in an academic program's goals and in a marketable competency-based skill set. Both the goals and the skill set are to be mastered through a variety of assessment activities and experiences. Bloom's modified taxonomy divides the learning process into two distinct levels, lower-order learning objectives and higher-order learning objectives as indicated in Table 1 below.

Table 1: Bloom's Modified Taxonomy

Lower Order Learning Objectives	Skills
Remembering	Recalling or retrieving specific definitions or formulae
Understanding	Explaining these definitions or formulae to another person
Applying	Solving simple applications of these definitions and formulae
Higher-Order Learning Objectives	
Analysing	Identifying the concepts needed to solve a problem
Evaluating	Justifying your selection of each concept; assessing alternatives
Creating	Developing a potential solution to a problem

This table identifies the lower-order learning objectives from Bloom's Modified Taxonomy for educational objectives and the skills associated with those objectives. It also identifies Bloom's higher-order learning objectives and the skills associated with those objectives.

For hierarchical disciplines - economics, mathematics for example, greater emphasis would be given to the lower-order learning objectives in the introductory courses with a gradual shift to the higher-order learning objectives as students move to the discipline's capstone course and/or experience. Unlike Bloom's modified taxonomy, Fink's taxonomy does not divided the learning process into two levels (explicitly); rather, it provides a holistic approach to a specific outcome - significant learning as indicated in Table 2 below.

The first three components of Fink's taxonomy are quite similar to the six components of Bloom's modified taxonomy and, implicitly, follow Bloom's two-fold division of the learning process. The second three components make explicit the idea that potential solutions to some problems come from thinking

holistically from outside a specific discipline's basic principles and worldview. Both taxonomies should be used in tandem to develop SLOs that are designed to guide students toward the goals of mastering critical thinking, of acquiring a personally rewarding and marketable competency-based skill set, and of becoming a self-directed learner. The third action that creates a structured learning environment is the assignment of structured assessment activities. These activities offer precise guidance and model how to solve problems, and provide opportunities for students to demonstrate mastery of the course's SLOs. SLOs associated with the lower-order learning objectives of Bloom's modified taxonomy and the first two components of Fink's taxonomy may be assessed using multiple-choice questions and simple computational problems. SLOs associated with the remaining aspects of each taxonomy may be assessed using essays, case studies and/or term projects with the proviso that students have been appraised of the rubric that will be used to assess their mastery of the SLOs associated with those activities (Loveland, 2005; Mansilla et al, 2009; Montgomery, 2000; Weimer, 2012). Finally, every reading assignment should be accompanied by (tied to) a structured writing assignment (Walvoord and Johnson-Anderson, 1995).

Table 2: Fink's Taxonomy of Significant Learning

Taxonomy Component	Skill
Fundamental Knowledge	Understanding and remembering information and ideas
Application	Skills, critical, and practical thinking; managing projects
Integration	Connecting ideas, people, realms of life
Human Dimension	Learning about one's self; others
Caring	Developing new feelings, interests, values
Learning How to Learn	Becoming a better student; inquiring about a subject, self-directed learning

This table delineates the six components of Fink's taxonomy of significant learning. Fink's taxonomy makes explicit the idea that potential solutions to some problems come from thinking holistically from outside a specific discipline's basic principles and worldview.

The fourth and final action to create a structured learning environment is post-testing. The two tests administered during the first week of the course are administered again during finals week. The difference between the pre-test score and the post-test score provide some evidence of the "value added." That is, by how much did the students' stock of knowledge and readiness for self-directed learning change as a result of the instruction they received, and the investment of their time, talent, and treasure in their progress of mastering critical thinking, of acquiring a personally rewarding and marketable competency-base skill set, and of becoming a self-directed learner.

Integrating Structured Learning Environment and Assurance of Learning

A structured learning environment focused on developing students' human capital in the discipline and skill of self-directed learning can be integrated with a quality control system that monitors students' performance on related SLOs. Such a system provides signals from students' work which indicates when intervention in the learning process is necessary to remediate shortcomings. Assurance of learning is one such quality control system. Assurance of learning is a process that permits the classroom teacher to demonstrate that his or her students have met the SLOs for the course.

The adoption, implementation and *continued use* of assurance of learning signals to clients/customers of the educational system - the organizations that employ the students and the communities of which they are participating members - that the system is serious about improving the quality of its graduates' human capital. These assurance of learning practices further benefit the three principal stakeholders in the educational process. Students may perceive that an increase in the quality of their human capital translates into better paying careers and more satisfying personal and community life. Potential employers may

perceive that prospective employees are better prepared and that may translate into better bottom lines. Finally, academic institutions and the disciplines located therein may perceive that investment in the assurance of learning process improves the institution's reputation. Improving students' human capital is a win-win-win situation for all three interested parties.

The process of measuring the degree to which students exceed, meet or do not meet the performance standard for each of the SLOs generates the data to be collected and analyzed. Without this continuous supply of accurate data, the criticisms of the current system of education - a perceived low quality of potential entry-level employees' skills - by the clients /customers of this system will not be addressed and resolved to the clients'/customers' satisfaction. Additional empirical evidence from outside the classroom in support of the win-win-win situation must also be forthcoming. This implies that data, such as post-graduation employment and initial salary one-year out, and the employment, promotions, and salary five years out, must be gathered and analyzed.

In addition, surveys of employers of the graduates' performance that allow employers to identify weakness in the students' preparation can be used to develop SLOs going forward. This type of information may also be gathered through informational conversations with, or through direct involvement of, community members on discipline specific advisory boards. The results should be made available to the organizations that employ the students, to the affected academic unit, and to the general public. This marshalling and distribution of the supporting empirical evidence is a standard practice of graduate programs, and, in particular, of MBA programs. Such practices could be modified by the affected academic unit to suit its specific needs. The following example draws of the authors' experience with a ten-step assurance of learning program as it has been applied to a specific course, Principles of Microeconomics, a required course for students with a declared major in the authors' college of business. The goal of having students master demand and supply analysis is the focus of this example presented in Table 3.

As noted above, assurance of learning is a quality control program designed to gather evidence on students' mastery of course specific SLOs. If the evidence gathered in this step of the assurance of learning process indicates that students have not mastered a course specific SLO, then intervention is required, and a two part remediation plan must be developed and implemented. An essential feature of the process is Step 8: Closing the loop (see Step 8 in Table 3 above) which identifies whether or not there is a need for remediation. Remember, a key goal of a structured learning environment based instruction and the ten-step assurance of learning program is on what knowledge students should master during the course and on what knowledge students should retain one year after the course; that is, mastering critical thinking, acquiring a personally rewarding and marketable competency-based skill set, and becoming a self-directed learner. However, if the initial evidence indicates that students have not mastered the SLO (the expectations set forth in Step 3 were not met), then intervention in the form of a two-part remediation plan is required. The first part consists of remediation exercises: additional explanations of the SLO to be mastered and additional practice sets. The second part is additional assessment to gather new evidence of potential students' mastery of the SLO in question.

Table 3: A Ten-Step Assurance of Learning Program with an Integrated Structured Learning Environment

Step	Example (Principles of Microeconomics)
Step 1: Translate each educational goal into a measurable SLO	Students will be able to solve problems dealing with lower-order learning objectives associated with the interrelationship among demand, supply and price elasticity of demand.
Step 2: Identify an appropriate assessment activity to measure the SLO in Step 1 above	Since the goal and its SLO are associated with the lower-order learning objectives of remembering, understanding, and applying a quiz using multiple-choice questions could be used to assess students' mastery.
Step 3: Establish the performance standard for each SLO	At least 70% of the students answer correctly at least 6 of 8 questions used to assess students' mastery of this SLO.
Step 4: Establish the performance categories for each SLO.	**Exceeds Expectations**: A student answered all eight questions correctly **Meets Expectations**: A student answered at least six questions but no more than seven questions correctly **Does Not Meet Expectations**: A student answered five or fewer questions correctly
Step 5: Identify the courses in which each SLO is to be measured	All sections of Principles of Microeconomics
Step 6: Identify who is to collect the data	The instructors who teach the identified sections of this course are responsible for gathering the data. These data are to be forwarded to the individual who is responsible for analyzing the data.
Step 7: Determine who is responsible for analyzing the data – comparing outcomes (the number of students in each performance category) to the level of satisfactory performance defined in Step 3 and reporting that analysis to each level from which the data were gathered (the sections, disciple and department) and the college and university, if appropriate.	This data set and an example of student work (name removed) in each performance category is given to the chairperson for analysis. The chairperson reports the results of the analysis to the instructor(s) who provided the data. A copy of the data set and representative work is retained by the instructor.
Step 8: Develop policies for closing the loop: What is the course of action if outcomes are greater than or equal to the expected level of satisfactory performance? What is the course of action if outcomes are less than the expected level of satisfactory performance?	If the initial evidence indicates that the goal and SLO have been met then several additional iterations with similar results must be obtained before you are completely satisfied…and you must gather additional downstream evidence to support your claim. Just because the goal and SLO were met in your class, this knowledge must be verified at other points in the curriculum. However, if the initial evidence indicates that students have not mastered the SLO (the expectations set forth in Step 3 were not met), then intervention in the form of a two-part remediation plan is required. The first part consists of remediation exercises: additional explanations of the SLO to be mastered and additional practice sets. The second part is additional assessment to gather new evidence of potential students' mastery of the SLO in question.
Step 9: Develop policies for integrating assurance of learning into the advising and curriculum processes	At the initial advising session home-grown or transfer students are informed of the existence of the assurance of learning process and its implications for the students. A brief explanation of the assurance of learning process should become part of the course syllabus and be explained to the students on the first day of class.
Step 10: Determine who will monitor the assurance of learning process	The Dean of the college is responsible for monitoring the assurance of learning plan because the Dean is able to oversee and influence the outcomes of the performance review and the reappointment, promotion and tenure processes. That is, the evaluation of the effectiveness of the assurance of learning process must be embedded in at least two faulty evaluation processes: performance review and retention, promotion and tenure.

This table provides a step-by step guide to implementing an integrated system of education using a structured learning environment and assurance of learning. An example of each step from the implementation of this system to a Principles of Microeconomics course is provided.

LIMITATIONS

We developed an integrated learning system based on the findings of our action research projects and classroom experiences within an Association to Advance Collegiate Schools of Business (AACSB) accredited college of business within a public, regional comprehensive university. Some of our experience may not translate to other settings. In addition, assurance of learning is required as part of our AACSB accreditation and thus faculty may be more willing to implement such a process than in other settings.

Areas for Future Research

Our proposal for integrating a structured learning environment with a process of assurance of learning results in the generation of data. Using these data, individuals could develop research programs to explore a variety of questions, such as: Does "value-added," the improvement between the pre-test results and the post-test results associated with the application of the discipline-based assessment activity, increase and is this increase due to our proposed treatment? Do the organizations that employ the students coming from the academic unit(s) that have implemented our proposed treatment perceive a difference in the quality of these potential employees in the dimensions that align with the SLOs?

CONCLUSION

In this paper we put forth a proposal to integrate a structured learning environment with assurance of learning to improve the quality of students' human capital. To that end we explored four topics: (1) criticism of the existing system of education, (2) evidence for action research projects that suggests the need for a structured learning environment for those students who are not ready for self-directed learning, (3) components of a structured learning environment, and (4) assurance of learning. We recommend, and provide a path for, integrating components of a structured learning environment and assurance of learning. We further suggested that prospective employers, students, disciplines and faculty could reap net benefits from implementing this proposal. Students may perceive that an increase in the quality of their human capital translates into better paying careers and more satisfying personal and community life. Potential employers may perceive that prospective employees are better prepared and that may translate into better bottom lines. Finally, academic institutions and the disciplines located therein may perceive that investment in the assurance of learning process translates into better reputations. Improving students' human capital is a win-win-win situation for all three interested parties.

APPENDIX

An example of AOL assessment for Principles of Microeconomics

The below multiple-choice questions used to assess students' mastery of the following goal and SLO would comprise one portion of a larger assessment activity:

> Goal: Demand and supply analysis
> SLO: Students will be able to solve problems dealing with lower-order learning objectives associated with the interrelationship among demand, supply and price elasticity of demand.

Sample Questions

The definition of price elasticity of demand is captured best by which of the following:

> A.   The change in quantity demanded divided by the change in price

B.   The change in price divided by the change in quantity demanded
C.   The percentage change in the quantity demanded divided by the percentage change in the price
D.   The percentage change in the price divided by the percentage change in the quantity demanded

If demand is elastic and quantity demanded declines by 3% then price must

A. Decrease by 3%
B. Increase by 3%
C. Increase by less than 3%
D. Decrease by more than 3%

Questions 3-4 are based on the following information. The original price is $5 and the original quantity is 100 units. After an increase in the number of sellers the new price is $4 and the new quantity is 115 units.

Demand is _____. (Use the total revenue test.)

A. Elastic
B. Inelastic
C. Unit elastic
D. Indeterminate

As a result of the increase in the number of sellers

A. Demand and quantity supplied increased.
B. Supply and quantity demanded increased.
C. Supply increased and quantity demanded decreased.
D. Demand increased and quantity supplied decreased.

If the prices of resources increased, then the market price would

A. Decrease as would quantity supplied.
B. Decrease as would quantity demanded.
C. Increase but quantity supplied would decrease.
D. Increase but supply would decrease.

If demand is inelastic and the state government increased the tax on cigarettes total revenue would

A. Decrease as would quantity demanded.
B. Decrease as would quantity supplied.
C. Increase but quantity supplied would decrease.
D. Increase but quantity demanded would decrease.

If buyers' incomes decrease then the market price would

A. Increase as would quantity supplied.
B. Increase as would quantity demanded.
C. Decrease but quantity demanded would decrease.
D. Decrease but quantity supplied would decrease.

If the number of buyers increase then the market supply curve would

A. Shift to the right.
B. Shift to the left.
C. Remain constant.
D. Become more elastic.

Answer Key

Q1: C; Q2: C; Q3: B; Q4: B; Q5: D; Q6: D; Q7: D; Q8: C
Performance standard for the SLO: At least 70% of the students answer correctly at least 6 of 8 questions used to assess students' mastery of this SLO.

Q1: 70% of the students responded correctly to this question

Q2: 90%
Q3: 50%*
Q4: 93%
Q5: 84%
Q6: 90%
Q7: 72%
Q8: 50%*

*Note: Even though the performance standard for this SLO was met more data must be gathered and additional work must be done to improve instruction and student performance on Q3 and Q8.

Performance categories for the SLO:

Exceeds: A student answered all eight questions correctly; 10 students

Meets: A student answered at least six questions but no more than seven questions correctly; 80 students

Does not meet: A student answered five or less questions correctly; 15 students

Remember, since the eight multiple-choice questions are one portion of a larger assessment activity, even if a student meets or exceeds expectations for this portion of the AOL process, the grade earned by the student is a function of all the assessment activities associated with the course.

REFERENCES

Anderson, L. and D. Krathwohl. (2001). *A Taxonomy for Learning, Teaching and Assessing:A Revision of Bloom's Taxonomy of Educational Objectives*. New York: Longman.

Arum, R. and J. Roksa. (2011). *Academically Adrift*. Chicago: University of Chicago Press.

Bloom, B.S. (ed). (1956). *Taxonomy of Educational Objectives: The Classification of Educational Goals*. New York: David McKay Company.

Cate, T. and L. Dynan. (2010). "Structured Writing Assignments as Pedagogy: Teaching Content, Enhancing Skills." *Journal of Applied Economics and Policy* 29: 47-60.

Dweck, C. S. (2006). *Mindset*. New York: Ballantine Books

Dynan, L and T. Cate. (2009). "The Impact of Writing Assignments on Student Learning." *International Review of Economic Education* 8: 64-86.

Dynan, L., T. Cate and K. Rhee. (2008). "The Impact of Learning Structure on Students' Readiness for Self-Directed Learning." *The Journal of Education for Business* 84: 96-100.

Fink, L. (2003). *Creating Significant Learning Experiences*. Jossey-Bass, San Francisco, CA.

Guglielmino, L. (1977). *Development of the Self-Directed Learning Readiness Scale*. Doctoral Dissertation: University of Georgia. Dissertation Abstracts International, 38, 6467A.

Knowles, M. (1975). *Self-directed Learning: A Guide for Learners and Teachers*. Englewood Cliffs, NJ: Prentice-Hall/Cambridge.

Loveland, T. (2005). "Writing Standards-Based Rubrics for Technology Education Classrooms." *Technology Teacher* 65: 19-30.

Mansilla, V., E. Duraisingh, C. Wolfe, and C. Haynes. (2009). "Targeted Assessment Rubric: An Empirically Grounded Rubric for Interdisciplinary Writing." *Journal of Higher Education* 80: 334-53.

McKinsey and Company. (2009). *The Economic Impact of the Achievement Gap in America's Schools*. New York, NY.

Montgomery, K. (2000). "Classroom Rubrics: Systemizing What Teachers Do Naturally." *Clearing House* 73: 24.

Pohl, M. (2000). *Learning to Think, Thinking to Learn: Models and Strategies to Develop a Classroom Culture of Thinking*. Cheltenham, Vic: Hawker Brownlow.

The Conference Board. (2006). *Are They Really Ready for Work?* New York, NY.

Walvoord, B and V. Johnson-Anderson. (1995). "An Assessment Riddle." *Assessment Update,* 7: 8-11.

Weimer, M. (2012). A Course Redesign that Contributed to Student Success. Magnapublications@magnapubsemail.com

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A MODEL FOR FORECASTING SMALL BUSINESS FINANCIAL STATEMENTS AND FIRM PERFORMANCE

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ABSTRACT

Forecasting financial statements and completing comprehensive financial analysis constitutes a considerable challenge for entrepreneurs. Students in various entrepreneurship, finance and accounting courses also face this challenge. This paper presents a spreadsheet template that assists entrepreneurs and students with this task. The template creates forecasted financial statements, a capital budget, calculations of firm value and ratio analysis. The template addresses specific considerations of start-up firms. The template provides flexibility that allows adaptions to various entrepreneurs and to meet learning objectives of courses at varying levels.

INTRODUCTION

C reating pro-forma financial statements and comprehensive financial analysis represents a considerable challenge for users including entrepreneurs and students. Users commonly become overwhelmed by the volume of computations required to complete the analysis. Moreover, users frequently experience difficulty in correctly linking elements of the analysis together to produce balanced financial statements and meaningful financial analysis.

This paper provides a template for financial statement forecasting and completing financial analysis for a firm. The template produces forecasted financial statements, capital budgeting analysis, estimates of firm value and ratio analysis which compares the firm to others in the same industry. The financial statements have internal consistency and do not require plug variables to balance. The analysis also does not create circular references. Thus, the financial statements avoid problems associated with plug variables and circular references noted by other authors.

The template includes features that specifically address concerns of start-up firms. Simple modifications allow the tool to accommodate needs of entrepreneurs and professors from various business disciplines. The tool, as presented here, includes a high degree of automation. Users must enter only managerial decision variables. The template calculates the remaining variables. This fully automated version best meets the need of entrepreneurs. The rigor of work required of students can be adjusted by modifying the level of template automation. The template provides an annual analysis of the firm for each of the first five years of operation.

The remainder of the paper is organized as follows. The next section provides a brief literature review. The following section provides a discussion of some assumptions made to create the template. Next, the

template is introduced and discussed. The paper presents templates displaying sample calculations and the underlying formulae.   The paper closes with some concluding comments and suggestions for further research.

LITERATURE REVIEW

A relatively small body of academic work addresses financial statement forecasting. However, some patents exist concerning methods to complete financial analysis. Erwin, Fortheringham and McGuinness (1998), U.S. Patent US6249770, provides a method for forecasting financial statements based on historical data of the firm. This method examines information including inflation adjustments, exchange rates and historical account data for the company to develop forecasted financial statements and analysis. Paquette (2000), U.S. Patent US6850897, develops an algorithm for analyzing the use of profitability within an organization. The algorithm computes the relationship between profitability and several financial variables. They use these calculations to develop a total profitability ratio.   Other patents, and patent applications, exist that involve forecasting financial statements and other related issues (Chopra, Masih, Chugh, Bidkar and Navani, 2015).

Some academic research also examines forecasting financial statements based on historical data. Kerry (2010) develops a system for financial statement forecasting that requires the input of financial statements of a given firm, that of other firms, macroeconomic data and user forecasts of specific account items. Vélez-Pareja, I. and J. Tham (2008) and Vélez-Pareja (2011) discuss financial statement forecasting based on historical data. They develop a complex system to forecast that does not require plug figures to balance the financial statements. Arnold (2011) also develops pro-forma financial statements with a focus on plug figures. He demonstrates the link between two common plug figures used, common stock and long-term debt.

Jalbert, Briley and Jalbert (2012) present a method to forecast financial statements based on Risk Management Associates data. Risk Management Associates data provides summary historical data based on averages within an industry and geographic area. They suggest their method offers an alternative to the percentage of sales method and can be more easily defended to skeptical bankers.

Drougas and Johnson (2004) utilize statistical techniques to forecast financial statements to facilitate learning by undergraduate students. The model simulates an income statement and demonstrates how uncertainty in forecasts affects the outcome. They then extend the analysis to forecast the balance sheet and free cash flows. Alzubaidi (2014) utilizes Visual Basic Code within Microsoft Excel to customize spreadsheets for different financial analysis purposes.

Desanctis and Jarvenpaa (1989) examine three reporting methods for forecasting financial statements. They examine graphical formats, numerical formats and a mix of the two.   Their results show that graphical formats improve the accuracy of forecast judgements.

Cheremushkin (2010) presents a system for forecasting financial statements that focuses on the use of retained earnings within the firm. Specifically, they identify relationships between capital expenditures, sales and operating margins. Vélez-Pareja (2010) examines the role of risky tax shields and risky debt in creating pro-forma financial statements.

Vorkink, K. and K. Workman (2016) focus on estimating sales and sales growth in developing their forecasting method. They suggest a four-step process to estimate sales that involves 1.) constructing historical averages, 2.) adjust those averages for macroeconomic factors, 3.) adjust for industry factors and 4.) adjust for company specific factors.

The research here extends these bodies of literature. The template presented here specifically focusses on issues commonly faced by small businesses. These issues include Section 179 expense election and other immediate expensing options as well as non-expensed owner contributions to the firm.

ASSUMPTIONS

As with any financial analysis, the technique here requires certain assumptions. This section outlines assumptions incorporated into the template. The methodology assumes the business purchases capital equipment, expensed using standard depreciation tools, at the outset of the project only. To limit the complexity of the financial statements, users may select from four depreciation methods, 1.) 3-year MACRS, 2.) 5-Year Straight Line, 3.) 5-year MACRS, and 4.) 39-Year Straight Line. Immediate expensing using Section 179 expense election, or other immediate expensing options apples to purchase made after the initial investment.

The analysis assumes that cost of goods sold (COGS), as a percentage of sales, remains constant throughout the analysis. Users who require time-varying cost of goods sold can adjust this amount by overriding the calculated amount and directly entering a cost of goods sold amount. Overriding this figure does not affect calculations throughout the remainder of the spreadsheet. The capital budget utilizes a five-year framework. At the end of the fifth year of operations, all assets are sold.   The template assumes full payment of all liabilities. The methodology discounts pre-interest cash flows at the weighted average cost of capital (WACC).

FINANCIAL FORECASTING TEMPLATE

This section presents the forecasting template. The forecasting tool calculates some variables and users input other variables. To denote the difference, some items are bolded, while others are plain text. Users enter items indicated in plain text. The spreadsheet calculates items in bold. The spreadsheet does not protect calculated cells. Thus, advanced users may adjust these items. Users should back up their work in the event they inadvertently change these cells, or change the cells and later discover that their skill level is not sufficient to address the necessary accompanying changes.

The presentation includes both a numeric example and the underlying formulae. Tables 1-6 present the template in numeric format. Following the numeric template, Tables 1F-6F present the corresponding underlying formulae. Some formulae were too large to present in the spreadsheet. In these cases, the indicator * along with a number indicates presentation of the formulae in the table note.

The analysis begins with the entry of required input fields. Table 1 (Table 1F) shows necessary input variables and the income statement. Required inputs, exogenous to the model, include the average interest rate faced on loans, cost of equity, capital gains tax rate, ordinary income tax rate and corporate tax rate. While exogenous to the model, the template can accommodate additional analysis to determine these amounts. Users must simply perform the analysis and enter the resulting figures in the appropriate table cell.

The input section also includes COGS as a percentage of sales and the general excise tax rate.   As noted earlier, COGS as a percentage of sales remains constant throughout the five years of analysis. Users must report their estimate of this percentage in the input section.   Intermediate and advanced users may directly enter the cost of goods sold dollar amount to override this calculation. Per the spreadsheet design, overriding this figure does not affect the remaining calculations.

The spreadsheet includes a business tax called the General Excise Tax. This tax is framed after the Hawaii General Excise Tax. The tax is levied on businesses based on their sales. Many businesses chose to collect

the amount of this tax from customers. Regardless, the liability for the tax lies with the business. The tax rate here equals 4.167 percent, in line with Hawaii rates. Users can adjust the percentage. To accommodate businesses not facing this tax, the user simply sets the rate equal to zero percent.

Table 1: Input Variables and Income Statement

A	B	C	D	E	F	G	H
2	**INPUT VARIABLES**						
3							
4	**Average Interest Rate on Loans**	7.000%					
5	**Cost of Equity**	12.000%					
6	**Tax Rate on Capital Gains (TPS)**	15.000%					
7	**Tax Rate on Ordinary Income (TPB)**	20.000%					
8	**Corporate Tax Rate (TC)**	22.000%					
9	**Cost of Goods Sold as a % of Sales**	40.000%					
10	**General Excise Tax Rate**	4.167%					
	INCOME STATEMENT						
			Yr 0	**Yr 1**	**Yr 2**	**Yr 3**	**Yr 4**	**Yr 5**
15	**Sales**		300,000	325,000	295,000	300,000	600,000
16	**Less General Excise Tax**		**12,501**	**13,543**	**12,293**	**12,501**	**25,002**
17	**Cost of Goods Sold**		**120,000**	**130,000**	**118,000**	**120,000**	**240,000**
18	Labor		15,000	15,000	15,000	15,000	15,000
19	Employee Benefits		2,000	2,000	2,000	2,000	2,000
20	Utilities		5,000	5,000	5,000	5,000	5,000
21	Advertising		10,000	10,000	8,000	10,000	10,000
22	Rent		40,000	40,000	40,000	40,000	40,000
23	Expense 6		0	0	0	0	0
24	Expense 7		0	0	0	0	0
25	**Current Year Section 179 Purchases**		20,000	25,000	20,000	0	0
26	**Depreciation MACRS 3YR**		**9,900**	**13,500**	**4,500**	**2,100**	**0**
27	**Depreciation SL 5YR**		**8,000**	**8,000**	**8,000**	**8,000**	**8,000**
28	**Depreciation MACRS 5YR**		**12,000**	**19,200**	**11,400**	**7,200**	**6,600**
29	**Depreciation SL 39 Year Real Estate**		**2,564**	**2,564**	**2,564**	**2,564**	**2,564**
30	**Total Expenses**		**256,965**	**283,807**	**246,757**	**224,365**	**354,166**
31	**EBIT**		**43,035**	**41,193**	**48,243**	**75,635**	**245,834**
32	**Interest**		**8,400**	**11,550**	**8,750**	**10,850**	**8,400**
33	**EBT**		**34,635**	**29,643**	**39,493**	**64,785**	**237,434**
34	**Tax**		**5,195**	**4,446**	**5,924**	**9,718**	**35,615**
35	**Net Income**		**29,440**	**25,197**	**33,569**	**55,067**	**201,819**

This table shows the input variables and income statement. The spreadsheet calculates items in bold. Users enter their own data for items not bolded.

Table 1F: Input Variables and Income Statement (Formulae Display)

A	B	C	D	E	F	G	H
2	**INPUT VARIABLES**						
3							
4	**Avg. Interest Rate on Loans**	0.07					
5	**Cost of Equity**	0.12					
6	**Tax Rate ON Capital Gains**	0.15					
7	**Tax Rate on Ordinary Income**	0.2					
8	**Corporate Tax Rate**	0.22					
9	**COGS as a % of Sales**	0.4					
10	**General Excise Tax Rate**	0.04167					
	INCOME STATEMENT						
		Yr 0	**Yr 1**	**Yr 2**	**Yr 3**	**Yr 4**	**Yr 5**
15	**Sales**		300000	325000	295000	300000	600000
16	Less General Excise Tax		=D15*$C$10	=E15*$C$10	=F15*$C$10	=G15*$C$10	=H15*$C$10
17	Cost of Goods Sold		=D15*$C$9	=E15*$C$9	=F15*$C$9	=G15*$C$9	=H15*$C$9
18	Labor		15000	15000	15000	15000	15000
19	Employee Benefits		2000	2000	2000	2000	2000
20	Utilities		5000	5000	5000	5000	5000
21	Advertising		10000	10000	8000	10000	10000
22	Rent		40000	40000	40000	40000	40000
23	Expense 6		0	0	0	0	0
24	Expense 7		0	0	0	0	0
25	**Cur. Yr. Sec. 179 Purchases**		20000	25000	20000	0	0
26	**Depreciation MACRS 3YR**		=DP!E8	=DP!E9	=DP!E10	=DP!E11	=DP!E12
27	**Depreciation SL 5YR**		=DP!J8	=DP!J9	=DP!J10	=DP!J11	=DP!J12
28	**Depreciation MACRS 5YR**		=DP!O8	=DP!O9	=DP!O10	=DP!O11	=DP!O12
29	**Depreciation SL 39 Year**		=DP!T8	=DP!T9	=DP!T10	=DP!T11	=DP!T12
30	**Total Expenses**		=D16:D29	=E16:E29	=F16:F29	=G16:G29	=H16:H29
31	**EBIT**		=D15-D30	=E15-E30	=F15-F30	=G15-G30	=H15-H30
32	Interest		*1	*2	*3	*4	*5
33	**EBT**		=D31-D32	=E31-E32	=F31-F32	=G31-G32	=H31-H32
34	Tax		=D33*$C$6	=E33*$C$6	=F33*$C$6	=G33*$C$6	=H33*$C$6
35	Net Income		=D33-D34	=E33-E34	=F33-F34	=G33-G34	=H33-H34

This table shows formulae for the input variables and income statement. Worksheet 'S1' contains all calculations except depreciation. Worksheet 'DP' contains depreciation computations. *1 = (C102+C103+C110)*$C$4, *2 = (D102+D103+D110)*$C$4, *3 = (E102+E103+E110)*$C$4, *4 = (F102+F103+F110)*$C$4, *5 = (G102+G103+G110)*$C$4. The spreadsheet calculates bolded items. Users enter their own data for items not bolded.

Table 2: Statement of Retained Earnings and Statement of Cash Flows

A	B	C	D	E	F	G	H
38	**STATEMENT OF RET. EARNINGS**	**Yr 0**	**Yr 1**	**Yr 2**	**Yr 3**	**Yr 4**	**Yr 5**
39	**Old Retained Earnings**		**0**	**29,440**	**54,636**	**68,206**	**93,273**
40	**Net Income**		**29,440**	**25,197**	**33,569**	**55,067**	**201,819**
41	**Dividends**		0	0	20,000	30,000	0
42	**New Retained Earnings**		**29,440**	**54,636**	**68,206**	**93,273**	**295,092**
43							
44	**STATEMENT OF CASH FLOWS**	**Yr 0**	**Yr 1**	**Yr 2**	**Yr 3**	**Yr 4**	**Yr 5**
45	**Net Income**		**29,440**	**25,197**	**33,569**	**55,067**	**201,819**
46	**Depreciation**		**32,464**	**43,264**	**26,464**	**19,864**	**17,164**
47	**Increases in Liabilities**						
48	**Increase Short Term Bank Loans**		-5,000	-5,000	35,000	-25,000	0
49	**Increase in Credit Card Loans**		25,000	-25,000	0	0	0
50	**Increase Current Liabilities 1**		0	0	0	0	0
51	**Increase Current Liabilities 2**		0	0	0	0	0
52	**Increase Current Liabilities 3**		0	0	0	0	0
53	**Increase Current Liabilities 4**		0	0	0	0	0
54	**Increase Current Liabilities 5**		0	0	0	0	0
55	**Increase in Long Term Loan 1**		25,000	-10,000	-5,000	-10,000	-5,000
56	**Increase in Long Term Loan 2**		0	0	0	0	0
57	**Total Sources of Cash**		**106,904**	**28,461**	**90,033**	**39,931**	**213,983**
58	**Increases in Assets**						
59	**Increase Asset 2**		0	0	0	0	0
60	**Increase Asset 3**		-10,000	20,000	20,000	-50,000	20,000
61	**Increase Asset 4**		0	0	0	0	0
62	**Increase Asset 5**		0	0	0	0	0
63	**Increase Asset 6**		0	0	0	0	0
64	**Increase Asset 7**		0	0	0	0	0
65	**Increase Long Term Asset 1**		0	0	0	0	0
66	**Increase Long Term Asset 2**		0	0	0	0	0
67	**Increase in Equipment**		0	0	0	0	0
68	**Total Uses of Cash in Operations**		**-10,000**	**20,000**	**20,000**	**-50,000**	**20,000**
69	**Cash Paid to and Received from Stockholders**						
70	**Increase in Common Stock**		7,000	0	0	0	0
71	**Dividends**		0	0	20,000	30,000	0
72	**= Change in Cash Position**		**123,904**	**8,461**	**50,033**	**59,931**	**193,983**
73							
74	**Old Cash**		**20,000**	**143,904**	**152,365**	**202,398**	**262,329**
75	**Plus Change in Cash Position**		**123,904**	**8,461**	**50,033**	**59,931**	**193,983**
76	**New Cash Balance**		**143,904**	**152,365**	**202,398**	**262,329**	**456,312**

This table shows the statement of retained earnings and statement of cash flows. The spreadsheet calculates items in bold. Users enter their own data for items not bolded.

Table 2F: Statement of Retained Earnings and Statement of Cash Flows (Formulae Display)

A	B	C	D	E	F	G	H
38	**STMT OF RET. EARN.**		**Yr 1**	**Yr 2**	**Yr 3**	**Yr 4**	**Yr 5**
39	**Old Retained Earn.**		=C114	=D114	=E114	=F114	=G114
40	**Net Income**		=D35	=E35	=F35	=G35	=H35
41	**Dividends**		0	0	20000	30000	0
42	**New Retained Earn.**		=D39+D40-D41	=E39+E40-E41	=F39+F40-F41	=G39+G40-G41	=H39+H40-H41
43							
44	**STMT OF CASH FLOWS**		**Yr 1**	**Yr 2**	**Yr 3**	**Yr 4**	**Yr 5**
45	**Net Income**		=D35	=E35	=F35	=G35	=H35
46	**Depreciation**		=D26:D29	=E26:E29	=F26:F29	=G26:G29	=H26:H29
47	**Increase in Liabilities**						
48	**Increase ST Loans**		=D102-C102	=E102-D102	=F102-E102	=G102-F102	=H102-G102
49	**Increase CC Loans**		=D103-C103	=E103-D103	=F103-E103	=G103-F103	=H103-G103
50	**Increase Cur. Liab. 1**		=D104-C104	=E104-D104	=F104-E104	=G104-F104	=H104-G104
51	**Increase Cur. Liab. 2**		=D105-C105	=E105-D105	=F105-E105	=G105-F105	=H105-G105
52	**Increase Cur. Liab. 3**		=D106-C106	=E106-D106	=F106-E106	=G106-F106	=H106-G106
53	**Increase Cur. Liab. 4**		=D107-C107	=E107-D107	=F107-E107	=G107-F107	=H107-G107
54	**Increase Cur. Liab. 5**		=D108-C108	=E108-D108	=F108-E108	=G108-F108	=H108-G108
55	**Increase LT Loan 1**		=D110-C110	=E110-D110	=F110-E110	=G110-F110	=H110-G110
56	**Increase LT Loan 2**		=D111-C111	=E111-D111	=F111-E111	=G111-F111	=H111-G111
57	**Total Sources**		=D45:D56	=E45:E56	=F45:F56	=G45:G56	=H45:H56
58	**Increases in Assets**						
59	**Increase Asset 2**		=D82-C82	=E82-D82	=F82-E82	=G82-F82	=H82-G82
60	**Increase Asset 3**		=D83-C83	=E83-D83	=F83-E83	=G83-F83	=H83-G83
61	**Increase Asset 4**		=D84-C84	=E84-D84	=F84-E84	=G84-F84	=H84-G84
62	**Increase Asset 5**		=D85-C85	=E85-D85	=F85-E85	=G85-F85	=H85-G85
63	**Increase Asset 6**		=D86-C86	=E86-D86	=F86-E86	=G86-F86	=H86-G86
64	**Increase Asset 7**		=D87-C87	=E87-D87	=F87-E87	=G87-F87	=H87-G87
65	**Increase LT Asset 1**		=D91-C91	=E91-D91	=F91-E91	=G91-F91	=H91-G91
66	**Increase LT Asset 2**		=D93-C93	=E93-D93	=F93-E93	=G93-F93	=H93-G93
67	**Increase in Equi.**		=D95-C95	=E95-D95	=F95-E95	=G95-F95	=H95-G95
68	**Total**		=D59:D67	=E59:E67	=F59:F67	=G59:G67	=H59:H67
69	**Cash from Stockholders**						
70	**Increase in Com. Stk.**		=D113-C113	=E113-D113	=F113-E113	=G113-F113	=H113-G113
71	**Dividends**		=D41	=E41	=F41	=G41	=H41
72	**= Change in Cash**		*6	*7	*8	*9	*10
73							
74	**Old Cash**		=C81	=D81	=E81	=F81	=G81
75	**Plus Change in Cash**		=D72	=E72	=F72	=G72	=H72
76	**New Cash Balance**		=D74+D75	=E74+E75	=F74+F75	=G74+G75	=H74+H75

*This table shows formulae for the statement of retained earnings and statement of cash flows. Worksheet 'S1' contains all calculations except depreciation. Worksheet 'DP' contains depreciation computations. *6 = (D57-D68+D70-D71), *7 = (E57-E68+E70-E71), *8 = (F57-F68+F70-F71), *9 = (G57-G68+G70-G71), *10 = (H57-H68+H70-H71). The spreadsheet calculates bolded items. Users enter their own data for items not bolded.*

The discussion moves forward to the balance sheet in Table 3 (Table 3F), where users are directed to enter specific business information. Data entry begins by entering data for the initial balance sheet in the Yr. 0 column. This process simply addresses two questions: Which assets will be placed in service?, and 2.) How will funds be obtained to finance these assets?

Users enter amounts for cash and other assets to reflect the cost of items acquired to initiate the business. Users enter capital purchases in the cell corresponding to the intended method of depreciation. Next, users enter sources of funds in the liabilities and equity portion of the balance sheet. Users must make necessary adjustments so that liabilities plus equity equal total assets and the basic accounting relationship holds. To call users attention to a non-conforming balance sheet, the template produces an error message if assets do not equal liabilities plus equity. This message does not appear in the numerical analysis presented here because the balance sheet conforms. However, Table 3F presents coding that produces this message. Specifically, the following error message appears: "The beginning balance sheet entries do not conform to the basic accounting relationship Assets = Liabilities + Equity. Please adjust the entries to comply with this requirement."

Users may adjust some balance sheet items in subsequent years to reflect their individual forecasts and preferences. The template automatically incorporates subsequent changes throughout the remainder of the financial statements. For example, if the user increases the common stock level in year 2 by $7,000, the cash level changes so the statement balances properly. Similarly, an increase in deposits from year 2 to year 3 results in a corresponding decrease in cash.

Some items entered in the initial balance sheet may not be changed in subsequent years. For example, users enter the initial amount of cash. However, the spreadsheet automatically calculates the cash balance in subsequent years. The user inputs capital purchase amounts in the initial year. However, gross depreciable assets remain constant throughout the five-year period. As noted earlier, Section 179 expense election, or some other immediate expensing option, applies to purchases completed after the initial investment.

The final balance sheet line reflects cumulative Section 179 purchases and other immediately expensed purchases. Balance sheets typically do not reflect these assets. Nevertheless, Section 179 purchases that have not worn out represent an asset to the firm. To maintain a running balance of these purchases, the balance sheet reports, in total, Section 179 assets placed into service. This running balance provides a tool to help estimate the sales price of these assets for capital budgeting purposes.

Next, we consider the income statement presented in Table 1 (Table 1F). Users enter sales and expense data. They may make appropriate modifications throughout each operating year. Changes in sales or expenses automatically reflect throughout the remaining statements. The user enters current year Section 179 expense amounts, but does not enter depreciation amounts. The template calculates depreciation automatically based on capital purchases reported in the balance sheet at Time 0. Table 6 (Table 6F), discussed later, demonstrate the depreciation computations. Debt amounts reported on the balance sheet and the average interest rate on loans combine to determine the interest expense. This calculation does not require user intervention.

Table 2 (Table 2F) shows the statement of retained earnings and statement of cash flows. The statement of retained earnings requires a single input. The user enters the dividends paid in each year. The template completes the cash flow statement in the entirety. Information presented elsewhere in the financial statements, transfers directly without user intervention. For example, annual changes in inventory reported in the balance sheet reflect in the cash flow statement.

Table 3: Balance Sheet

A	B	C	D	E	F	G	H
	BALANCE SHEET	Yr 0	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
80	**Assets**						
81	**Cash**	20,000	143,904	152,365	202,398	262,329	456,312
82	Inventory	10,000	10,000	10,000	10,000	10,000	10,000
83	Deposits	53,000	43,000	63,000	83,000	33,000	53,000
84	Asset 4	0	0	0	0	0	0
85	Asset 5	0	0	0	0	0	0
86	Asset 6	0	0	0	0	0	0
87	Asset 7	0	0	0	0	0	0
88	**Total Current Assets**	**83,000**	**196,904**	**225,365**	**295,398**	**305,329**	**519,312**
89	**Long Term Asset MACRS 3YR**	**30,000**	**30,000**	**30,000**	**30,000**	**30,000**	**30,000**
90	**Accumulated Depreciation 3YR**		**9,900**	**23,400**	**27,900**	**30,000**	**30,000**
91	**Long Term Asset SL 5YR**	**40,000**	**40,000**	**40,000**	**40,000**	**40,000**	**40,000**
92	**Accumulated Depreciation SL 5YR**		**8,000**	**16,000**	**24,000**	**32,000**	**40,000**
93	**Long Term Asset MACRS 5YR**	**60,000**	**60,000**	**60,000**	**60,000**	**60,000**	**60,000**
94	**Accumulated Depreciation MACRS 5 YR**		**12,000**	**31,200**	**42,600**	**49,800**	**56,400**
95	**Real Estate 39 Years**	**100,000**	**100,000**	**100,000**	**100,000**	**100,000**	**100,000**
96	**Accumulated Depreciation RE 39 YR SL**		**2,564**	**5,128**	**7,692**	**10,256**	**12,821**
97	**Total Fixed Assets**	**230,000**	**230,000**	**230,000**	**230,000**	**230,000**	**230,000**
98	**Total Accumulated Depreciation**	**0**	**32,464**	**75,728**	**102,192**	**122,056**	**139,221**
99	**Total Assets**	**313,000**	**394,440**	**379,636**	**423,206**	**413,273**	**610,092**
100							
101	**Liabilities and Equity**						
102	Short Term Bank Loans	25,000	20,000	15,000	50,000	25,000	25,000
103	Credit Card Loans	50,000	75,000	50,000	50,000	50,000	50,000
104	Current Liabilities 3	0	0	0	0	0	0
105	Current Liabilities 4	0	0	0	0	0	0
106	Current Liabilities 5	0	0	0	0	0	0
107	Current Liabilities 6	0	0	0	0	0	0
108	Current Liabilities 7	0	0	0	0	0	0
109	**Total Current Liabilities**	**75,000**	**95,000**	**65,000**	**100,000**	**75,000**	**75,000**
110	Long Term Loans 1	45,000	70,000	60,000	55,000	45,000	40,000
111	Long Term Loans 2						
112	**Total Liabilities**	**120,000**	**165,000**	**125,000**	**155,000**	**120,000**	**115,000**
113	Common Stock	193,000	200,000	200,000	200,000	200,000	200,000
114	**Retained Earnings**	**0**	**29,440**	**54,636**	**68,206**	**93,273**	**295,092**
115	**Total Equity**	**193,000**	**229,440**	**254,636**	**268,206**	**293,273**	**495,092**
116	**Total Liabilities and Equity**	**313,000**	**394,440**	**379,636**	**423,206**	**413,273**	**610,092**
117	**Cumulative Section 179 Purchases**		**20,000**	**45,000**	**65,000**	**65,000**	**65,000**
118							

This table shows the balance sheet. The spreadsheet calculates items in bold. Users enter their own data for items not bolded.

Table 3F: Balance Sheet (Formulae Display)

A	B	C	D	E	F	G	H
	BALANCE SHEET	Yr 0	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
80	**Assets**						
81	**Cash**	20000	=D76	=E76	=F76	=G76	=H76
82	Inventory	10000	10000	10000	10000	10000	10000
83	Deposits	53000	43000	63000	83000	33000	53000
84	Asset 4	0	0	0	0	0	0
85	Asset 5	0	0	0	0	0	0
86	Asset 6	0	0	0	0	0	0
87	Asset 7	0	0	0	0	0	0
88	**Total Cur. Assets**	=C81:C87	=D81:D87	=E81:E87	=F81:F87	=G81:G87	=H81:H87
89	**LT MACRS 3YR**	30000	=C89	=D89	=E89	=F89	=G89
90	**Acc. D. MACRS 3**		=C90+D26	=D90+E26	=E90+F26	=F90+G26	=G90+H26
91	**LT SL 5YR**	40000	=C91	=D91	=E91	=F91	=G91
92	**Acc. Dep. SL 5YR**		=C92+D27	=D92+E27	=E92+F27	=F92+G27	=G92+H27
93	**LT MACRS 5YR**	60000	=C93	=D93	=E93	=F93	=G93
94	**Acc. D. MACRS 5**		=D28+C94	=E28+D94	=F28+E94	=G28+F94	=H28+G94
95	**Real Estate 39**	100000	=C95	=D95	=E95	=F95	=G95
96	**Acc. Dep. RE 39**		=C96+D29	=D96+E29	=E96+F29	=F96+G29	=G96+H29
97	**Total Fixed Assets**	*11	*12	*13	*14	*15	*16
98	**Total Acc. Dep.**	*17	*18	*19	*20	*21	*22
99	**Total Assets**	=C88+C97-C98	=D88+D97-D98	=E88+E97-E98	=F88+F97-F98	=G88+G97-G98	=H88+H97-H98
100							
101	**Liabilities & Equity**						
102	ST Bank Loans	25000	20000	15000	50000	25000	25000
103	Credit Card Loans	50000	75000	50000	50000	50000	50000
104	Current Liabilities 3	0	0	0	0	0	0
105	Current Liabilities 4	0	0	0	0	0	0
106	Current Liabilities 5	0	0	0	0	0	0
107	Current Liabilities 6	0	0	0	0	0	0
108	Current Liabilities 7	0	0	0	0	0	0
109	**Total Cur. Liab.**	=C102:C108	=D102:D108	=E102:E108	=F102:F108	=G102:G108	=H102:H108
110	Long Term Loans 1	45000	70000	60000	55000	45000	40000
111	Long Term Loans 2						
112	**Total Liabilities**	=C109: C111	=D109:D111	=E109:E111	=F109:F111	=G109:G111	=H109:H111
113	Common Stock	193000	200000	200000	200000	200000	200000
114	**Retained Earnings**	0	=D42	=E42	=F42	=G42	=H42
115	**Total Equity**	=C113:C114	=D113:D114	=E113:E114	=F113:F114	=G113:G114	=H113:H114
116	**Total Liab. & Eq.**	=C112+C115	=D112+D115	=E112+E115	=F112+F115	=G112+G115	=H112+H115
117	**Cum. Sec. 179**		=D25	=D117+E25	=E117+F25	=F117+G25	=G117+H25
118	*23						

This table shows formulae for the balance sheet. Worksheet 'S1' contains all calculations except depreciation and messages. Worksheet 'DP' contains depreciation computations. Worksheet EM, cell A1, contains the following message: "Beginning balance sheet entries do not conform to the limitation Assets = Liabilities + Equity." *11 = C89+C91+C93+C95, *12 = D89+D91+D93+D95, *13 = D89+D91+D93+D95, *14 = F89+F91+F93+F95, *15 = G89+G91+G93+G95, *16 = H89+H91+H93+H95. *17 = C90+C92+C94+C96, *18 = D90+D92+D94+D96, *19 = E90+E92+E94+E96, *20 = F90+F92+F94+F96, *21 = G90+G92+G94+G96, *22 = H90+H92+H94+H96. *23 =if(C99=C116,"""EM!A1). The spreadsheet calculates bolded items. Users enter their own data for items not bolded.

Careful readers will notice that dividends appear both on the statement of retained earnings and the statement of cash flows. However, the bolded dividend amount listed in the statement of cash flows indicates the user should not adjust this figure. The user enters the dividend amount in the statement of retained earnings. The template automatically transfers the amount to the statement of cash flows.

Table 4 (Table 4F) presents the capital budget analysis. Most required elements for the capital budget transfer directly from information entered earlier. However, users enter terminal cash flows that occur at the 5th-year end. The template automatically calculates the cash terminal cash amount. The user enters sale prices for each current asset as well as all capital assets at the close of the 5th year of operations. Formulas incorporated in the spreadsheet for demonstration assumes sale of these items an amount equaling the purchase price. However, the items are not bolded, so users may override these computations. The template calculates tax due on sales of capital assets, and tax due on current asset sales automatically. The spreadsheet assumes payment in full of all liabilities and calculates the amounts automatically.

Users indicate the value of owner donated labor to the firm. Users sometimes overlook opportunity costs of the owner's time when computing the capital budget. They do not include the owner's labor as an expense to the firm. Incorporating this cost into the capital budget produces a more informed result. The line titled Non-Expensed Owner Labor allows users to enter the appropriate amount. The template calculates the Net Present Value (NPV) and Internal Rate of Return (IRR). The NPV uses the WACC, calculated in Table 5 (Table 5F), for the discount rate.

Table 5 (Table 5F) provides data on some calculated variables, computes the firm value and calculates financial ratios. Calculated variables include the proportion of funds obtained from equity and the proportion of funds obtained from debt at the outset of the analysis. These proportions combine with cost of funds data entered earlier to compute the WACC used in Net Present Value computations.

Table 5 (Table 5F) continues by calculating firm value. The process begins by calculating an adjusted EBIT that recognizes the value of non-expensed owner labor contributions to the firm. Firm value computations incorporate the adjusted EBIT. Firm value equals a maximum of the going concern value or liquidation value of the firm. The going concern value utilizes an adapted version of the work of Jalbert (2002). This method applies to firm's subject to the pass-through taxation system. Total common equity proxies for the firm's liquidation value. Given an expected level of earnings before interest and taxes, $E(EBIT)$, an interest expense, I, a capital gains tax rate, T_{PS}, a cost of equity, K_E, a cost of borrowing, K_D, and common equity, CE, the value of an unlevered firm, V_U, and a levered firm, V_L, respectively equals:

$$V_U = Max(\frac{E(EBIT)(1 - T_{PS})}{K_E}, CE) \tag{1}$$

$$V_L = Max(\frac{E(EBIT)(1 - T_{PS})}{K_E} + \frac{I[(1 - T_{PB}) * (1 - T_{PS})]}{K_D}, CE) \tag{2}$$

In a similar manner, the analysis includes calculations of firm value for a firm subject to double taxation. Based on the work of Miller, 1977, and given a corporate tax rate, T_C, equations 2 and 3 show calculations for the value of an unlevered firm, V_U, and a levered firm, V_L respectively.

$$V_U = Max(\frac{E(EBIT)(1 - T_{PS})(1 - T_C)}{K_E}, CE) \tag{3}$$

$$V_L = Max(\frac{E(EBIT)(1 - T_{PS})(1 - T_C)}{K_E} + \frac{I[(1 - T_{PB})(1 - T_{PS})(1 - T_C)]}{K_D}, CE) \qquad (4)$$

Table 4: Capital Budget Analysis

A	B	C	D	E	F	G	H
120	CAPITAL BUDGET ANALYSIS	Yr 0	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
121							
122	Sales		300,000	325,000	295,000	300,000	600,000
123	Less General Excise Tax		12,501	13,543	12,293	12,501	25,002
124	Cost of Goods Sold		120,000	130,000	118,000	120,000	240,000
125	Labor		15,000	15,000	15,000	15,000	15,000
126	Employee Benefits		2,000	2,000	2,000	2,000	2,000
127	Utilities		5,000	5,000	5,000	5,000	5,000
128	Advertising		10,000	10,000	8,000	10,000	10,000
129	Rent		40,000	40,000	40,000	40,000	40,000
130	Expense 4		0	0	0	0	0
131	Expense 5		0	0	0	0	0
132	Current Year Section 179 Purchases		20,000	25,000	20,000	0	0
133	Depreciation MACRS 3YR		9,900	13,500	4,500	2,100	0
134	Depreciation SL 5YR		8,000	8,000	8,000	8,000	8,000
135	Depreciation MACRS 5YR		12,000	19,200	11,400	7,200	6,600
136	Depreciation SL 39 Year Real Estate		2,564	2,564	2,564	2,564	2,564
137	EBIT		43,035	41,193	48,243	75,635	245,834
138	Interest		8,400	11,550	8,750	10,850	8,400
139	EBT		34,635	29,643	39,493	64,785	237,434
140	Tax		5,195	4,446	5,924	9,718	35,615
141	Net Income		29,440	25,197	33,569	55,067	201,819
142	Depreciation MACRS 3YR		9,900	13,500	4,500	2,100	0
143	Depreciation SL 5YR		8,000	8,000	8,000	8,000	8,000
144	Depreciation MACRS 5YR		12,000	19,200	11,400	7,200	6,600
145	Depreciation SL 39 Year Real Estate		2,564	2,564	2,564	2,564	2,564
146	Non-Expensed Owner Labor		20,000	20,000	20,000	20,000	20,000
147	Total Operating Cash Flows		41,904	48,461	40,033	54,931	198,983
148	Plus After Tax Interest Expense		6,552	9,009	6,825	8,463	6,552
149	Capital Budgeting Operating Cash Flows		48,456	57,470	46,858	63,394	205,535

Table 4: Capital Budget Analysis (Continued)

A	B	C	D	E	F	G	H
152	**CAPITAL BUDGET (CONTINUED)**	**Yr 0**	**Yr 1**	**Yr 2**	**Yr 3**	**Yr 4**	**Yr 5**
153	**Cash**	**-20,000**					
154	**Other Current Assets**	**-63,000**					
155	**Current Liabilities**	**75,000**					
156	**Long Term Asset MACRS 3YR**	**-30,000**					
157	**Long Term Asset SL 5YR**	**-40,000**					
158	**Long Term Asset MACRS 5YR**	**-60,000**					
159	**Real Estate 39 Years**	**-100,000**					
160	**Cash Flow**	**-238,000**					
161							
162	**Cash**						**456,312**
163	**Recovery of Current Assets**						63,000
164	**Payment of Current Liabilities**						-75,000
165	**Sale of 179 Expense Election Assets**						20,000
166	**Long Term Asset MACRS 3YR**						30,000
167	**Long Term Asset SL 5YR**						25,000
168	**Long Term Asset MACRS 5YR**						60,000
169	**Real Estate 39 Years**						90,000
170	**Tax on Gain on Sale of Current Assets**						**0**
171	**Tax on Sale of 179 Expense Election Assets**						**3,000**
172	**Tax on Long Term Asset MACRS 3YR**						**4,500**
173	**Tax on Long Term Asset SL 5YR**						**3,750**
174	**Tax on Long Term Asset MACRS 5 YR**						**8,460**
175	**Tax on Real Estate Sale**						**423**
176	**Total Terminal Cash Flows**						**649,179**
177	**Total Cash Flow**	**-238,000**	**48,456**	**57,470**	**46,858**	**63,394**	**854,714**
178							
179	**NPV**	**475,579**					
180	**IRR**	**0.4271**					

This table shows the capital budget. The spreadsheet calculates items in bold. Users enter their own data for items not bolded

Table 4F: Capital Budget Analysis (Formulae Display)

A	B	C	D	E	F	G	H
120	**CAPITAL BUDGET**	**Yr 0**	**Yr 1**	**Yr 2**	**Yr 3**	**Yr 4**	**Yr 5**
121							
122	=B15		=D15	=E15	=F15	=G15	=H15
123	=B16		=D16	=E16	=F16	=G16	=H16
124	=B17		=D17	=E17	=F17	=G17	=H17
125	=B18		=D18	=E18	=F18	=G18	=H18
126	=B19		=D19	=E19	=F19	=G19	=H19
127	=B20		=D20	=E20	=F20	=G20	=H20
128	=B21		=D21	=E21	=F21	=G21	=H21
129	=B22		=D22	=E22	=F22	=G22	=H22
130	=B23		=D23	=E23	=F23	=G23	=H23
131	=B24		=D24	=E24	=F24	=G24	=H24
132	=B25		=D25	=E25	=F25	=G25	=H25
133	=B26		=D26	=E26	=F26	=G26	=H26
134	=B27		=D27	=E27	=F27	=G27	=H27
135	=B28		=D28	=E28	=F28	=G28	=H28
136	=B29		=D29	=E29	=F29	=G29	=H29
137	=B31		=D31	=E31	=F31	=G31	=H31
138	=B32		=D32	=E32	=F32	=G32	=H32
139	=B33		=D33	=E33	=F33	=G33	=H33
140	=B34		=D34	=E34	=F34	=G34	=H34
141	=B35		=D35	=E35	=F35	=G35	=H35
142	=B133		=D133	=E133	=F133	=G133	=H133
143	=B134		=D134	=E134	=F134	=G134	=H134
144	=B135		=D135	=E135	=F135	=G135	=H135
145	=B136		=D136	=E136	=F136	=G136	=H136
146	**Non-Exp. Owner Labor**		20000	20000	20000	20000	20000
147	**Total Op. Cash Flows**		*24	*25	*26	*27	*28
148	**Plus After Tax Interest**		=D138*(1-$C$8)	=E138*(1-$C$8)	=F138*(1-$C$8)	=G138*(1-$C$8)	=H138*(1-$C$8)
149	**Budgeting Op. Cash Flows**		=(D147+D148)	=(E147+E148)	=(F147+F148)	=(G147+G148)	=(H147+H148)

Table 4F: Capital Budget Analysis (Formulae Display) (Continued)

A	B	C	D	E	F	G	H
152	**CAPITAL BUDGET (CONT)**	**Yr 0**	**Yr 1**	**Yr 2**	**Yr 3**	**Yr 4**	**Yr 5**
153	=B81	=-C81					
154	**Other Current Assets**	=-(C82:C87)					
155	**Current Liabilities**	=(C102:C108)					
156	=B89	=-C89					
157	=B91	=-C91					
158	=B93	=-C93					
159	=B95	=-C95					
160	**Cash Flow**	=(C153:C159)					
161							
162	=B81						=H81
163	**Recovery of Current Assets**						=-C154
164	**Pmt. of Current Liabilities**						=-C155
165	**Sale of Section 179 Assets**						20000
166	=B156						30000
167	=B157						25000
168	=B158						=-C158
169	=B159						90000
170	**Tax on Cur. Assets Gain**						*29
171	**Tax on Sec. 179 Assets**						=H165*C6
172	**Tax Asset MACRS 3YR**						=DP!E32
173	**Tax on SL 5YR**						=DP!J32
174	**Tax on MACRS 5 YR**						=DP!O32
175	**Tax on Real Estate Sale**						=DP!T32
176	**Total Terminal Cash Flows**						*31
177	**Total Cash Flow**	=C160	=D149	=E149	=F149	=G149	=SUM(H149+H176)
178							
179	**NPV**	*30					
180	**IRR**	=IRR(C177:H177)					

*This table shows formulae for the capital budget.. Worksheet 'S1' contains all calculations except depreciation. Worksheet 'DP' contains depreciation computations. *24 =(D141:D145)-D146, *25 =(E141:E145)-E146, *26 =(F141:F145)-F146, *27 =(G141:G145)-G146, *28 =(H141:H145)-H146. *29 =SUM((H163+C154)*$C$6, *30 =NPV(C187,D177:H177)+C177. *31 =(H162:H169)-(H170:H175).   The spreadsheet calculates bolded items. Users enter their own data for items not bolded.*

Table 5: Calculated Variables, Firm Value and Ratio Analysis

A	B	C	D	E	F	G	H	I
183	**CALCULATED VARIABLES**							
184								
185	**Proportion of Funds From Equity**	**0.6166**						
186	**Proportion of Funds from Debt**	**0.3834**						
187	**Cost of Capital (WACC)**	**0.0955**						
188								
189	**COMPUTATION OF FIRM VALUE**							
190		**Yr 0**	**Yr 1**	**Yr 2**	**Yr 3**	**Yr 4**	**Yr 5**	
191	**EBIT**		**43,035**	**41,193**	**48,243**	**75,635**	**245,834**	
192	**Unexpensed Value of Owners Time**		**20,000**	**20,000**	**20,000**	**20,000**	**20,000**	
193	**EBIT for Valuation**		**23,035**	**21,193**	**28,243**	**55,635**	**225,834**	
194								
195	**Firm Value: Pass-Through Taxation (Jalbert Method)**							
196								
197	**Value of Unlevered Firm**		**229,440**	**254,636**	**268,206**	**394,081**	**1,599,657**	
198	**Value of Levered Firm**		**229,440**	**254,636**	**268,206**	**386,331**	**1,593,657**	
199	**Gain from Leverage**		**0**	**0**	**0**	**-7,750**	**-6,000**	
200								
201	**Firm Value: Double Taxation (Miller Method)**							
202								
203	**Value of Unlevered Firm**		**229,440**	**254,636**	**268,206**	**307,383**	**1,247,732**	
204	**Value of Levered Firm**		**245,880**	**277,241**	**285,331**	**328,618**	**1,264,172**	
205	**Gain from Leverage**		**16,440**	**22,605**	**17,125**	**21,235**	**16,440**	
206								
207	**COMPUTATION OF FINANCIAL RATIOS**							
208		**Yr 0**	**Yr 1**	**Yr 2**	**Yr 3**	**Yr 4**	**Yr 5**	**RMA**
209	**Total Asset Turnover**		**0.761**	**0.856**	**0.697**	**0.726**	**0.983**	x
210	**Return on Assets**		**0.075**	**0.066**	**0.079**	**0.133**	**0.331**	x
211	**Debt to Equity**	**0.622**	**0.719**	**0.491**	**0.578**	**0.409**	**0.232**	x
212	**Current Ratio**	**1.107**	**2.073**	**3.467**	**2.954**	**4.071**	**6.924**	x

This table shows calculated variables, firm value computations and financial ratio calculations. The spreadsheet calculates bolded items. Users enter their own data for items not bolded.

Table 5F: Calculated Variables, Firm Value and Ratio Analysis (Formulae Display)

A	B	C	D	E	F	G	H	I
183	**CALCULATED VARIABLES**							
184								
185	**Proportion of Funds from Equity**	=C115/C116						
186	**Proportion of Funds from Debt**	=C112/C116						
187	**Cost of Capital (WACC)**	*32						
188								
189	**COMPUTATION OF FIRM VALUE**							
190			**Yr 0**	**Yr 1**	**Yr 2**	**Yr 3**	**Yr 4**	**Yr 5**
191	**EBIT**		=D31	=E31	=F31	=G31	=H31	
192	**Not expensed Owners Time Value**		=D146	=E146	=F146	=G146	=H146	
193	**EBIT for Valuation**		=D197-D198	=E197-E198	=F197-F198	=G197-G198	=H197-H198	
194								
195	**Firm Value: Pass-Through Taxation (Jalbert Method)**							
196								
197	**Value of Unlevered Firm**		*33	*34	*35	*36	*37	
198	**Value of Levered Firm**		*38	*39	*40	*41	*42	
199	**Gain from Leverage**		=D204-D203	=E204-E203	=F204-F203	=G204-G203	=H204-H203	
200								
201	**Firm Value: Double Taxation (Miller Method)**							
202								
203	**Value of Unlevered Firm**		*43	*44	*45	*46	*47	
204	**Value of Levered Firm**		*48	*49	*50	*51	*52	
205	**Gain from Leverage**		=D210-D209	=E210-E209	=F210-F209	=G210-G209	=H210-H209	
206								
207	**COMPUTATION OF FINANCIAL RATIOS**							
208			**Yr 0**	**Yr 1**	**Yr 2**	**Yr 3**	**Yr 4**	**Yr 5**	**RMA**
209	**Total Asset Turnover**		=D15/D99	=E15/E99	=F15/F99	=G15/G99	=H15/H99	x
210	**Return on Assets**		=D35/D99	=E35/E99	=F35/F99	=G35/G99	=H35/H99	x
211	**Debt to Equity**	=C112/C115	=D112/D115	=E112/E115	=F112/F115	=G112/G115	=H112/H115	x
212	**Current Ratio**	=C88/C109	=D88/D109	=E88/E109	=F88/F109	=G88/G109	=H88/H109	x

This table shows formulae for calculated variables, firm value and financial ratios. Worksheet 'S1' contains all calculations except depreciation. Worksheet 'DP' contains depreciation computations. *32 =(C185*C5)+(C186*C4*(1-C7)). *33=MAX(D193*(1-$C$6)/$C$5,D115), *34=MAX(E193*(1-$C$6)/$C$5,E115), *35=MAX(F193*(1-$C$6)/$C$5,F115), *36=MAX(G193*(1-$C$6)/$C$5,G115), *37=MAX(H193*(1-$C$6)/$C$5,H115). *38=MAX(D197+(D32*((1-$C$7)-(1-$C$6)))/$C$4,D115) *39=MAX(E197+(E32*((1-$C$7)-(1-$C$6)))/$C$4,E115), *40=MAX(F197+(F32*((1-$C$7)-(1-$C$6)))/$C$4,F115), *41=MAX(G197+(G32*((1-$C$7)-(1-$C$6)))/$C$4,G115) *42=MAX(H197+(H32*((1-$C$7)-(1-$C$6)))/$C$4,H115). *43=MAX(D193*((1-$C$8)*(1-$C$6))/$C$5,D115) *44=MAX(E193*((1-$C$8)*(1-$C$6))/$C$5,E115), *45=MAX(F193*((1-$C$8)*(1-$C$6))/$C$5,F115), *46=MAX(G193*((1-$C$8)*(1-$C$6))/$C$5,G115), *47=MAX(H193*((1-$C$8)*(1-$C$6))/$C$5,H115). *48=MAX(D203+(D32*((1-$C$7)-(1-$C$8)*(1-$C$6))/$C$4),D115), *49=MAX(E203+(E32*((1-$C$7)-(1-$C$8)*(1-$C$6))/$C$4),E115) *50=MAX(F203+(F32*((1-$C$7)-(1-$C$8)*(1-$C$6))/$C$4),F115) *51=MAX(G203+(G32*((1-$C$7)-(1-$C$8)*(1-$C$6))/$C$4),g115) *52=MAX(H203+(H32*((1-$C$7)-(1-$C$8)*(1-$C$6))/$C$4),H115. The spreadsheet calculates bolded items. Users enter their own data for items not bolded.

Equation 5 shows computations of the increase in firm value from borrowing money also called the gain from leverage, G_L. This equation applies to both the Jalbert (2002) and Miller (1977) approaches.

$$G_L = V_L - V_U \qquad (5)$$

The spreadsheet automatically calculates firm value figures based on information introduced elsewhere in the spreadsheet.

Table 5 (Table 5F) further shows the calculation of several financial ratios. In addition to the calculated ratios, the last column provides space for Risk Management Association ratios. Risk Management Associates (RMA) publishes Annual Statement Studies each year. These Annual Statement Studies provide ratios based on average data for firms within an industry. Users should take special care to compare the total asset turnover ratios produced by their calculations to the relevant RMA ratios. Significant differences suggest the business as envisioned may not produce the forecasted results.

Table 6 (Table 6F) shows depreciation calculations. As noted earlier, four depreciation alternatives are offered, 3-year MACRS, 5-year straight line, 5-year MACRS and 39-year straight line. The template automatically completes all depreciation calculations. Users do not adjustment any components of this spreadsheet.

ASSESSMENT

The author utilizes this template in a junior level undergraduate Small Business Finance course at an AACSB accredited university. Admission to the course required students to have previously completed a principles of finance course. Development of the spreadsheet occurred over a twenty-year period. Early on, the instructor required students to complete the financial analysis without the benefit of a template. Discussion of the requirement commonly produced a bewildered daze from students. The resulting product commonly involved a partial set of financial statements that did not balance along with a variety of analysis problems. Moreover, extensive requests for assistance from students indicated they could not complete the entire financial analysis without some level of assistance.

More recently, the instructor provides students the template presented here. Since incorporating the template, only rarely do students produce unbalanced financial statements. Students focus more on adjusting the spreadsheet to most accurately reflect reality and interpretation of the results.

The template presented here underwent various iterations over time. For professional use, the template should utilize the full automation features presented here. For academic users, reducing the amount of automation may provide a better learning tool for some classes. Some success resulted by providing full automation for the financial statements, but no automation for valuation computations and ratio computations. However, as noted earlier, instructors can adjust the amount of automation provided to meet the needs of a specific class.

Table 6: Depreciation Computations

A	B	C	D	E	F	G	H	I	J
2	MACRS 3 Year					SL 5 Year			
3									
4	**Depreciation Taken**					**Depreciation Taken**			
5									
6	Year	Percentage	Cost	Depreciation		Year	Percentage	Cost	Depreciation
7	0					0			
8	1	0.33	30,000	9,900		1	0.2	40,000	8,000
9	2	0.45	30,000	13,500		2	0.2	40,000	8,000
10	3	0.15	30,000	4,500		3	0.2	40,000	8,000
11	4	0.07	30,000	2,100		4	0.2	40,000	8,000
12	5	0	30000	0		5	0.2	40,000	8,000
13									
14	Total Depreciation Taken			30,000		Total Depreciation Taken			40,000
15									
16	**Book Value**					**Book Value**			
17									
18	Cost of Machine			30,000		Cost of Machine			40,000
19	Less Depreciation Taken			30,000		Less Depreciation Taken			40,000
20	= Book Value			0		= Book Value			0
21									
22	**Gain on Sale**					**Gain on Sale**			
23									
24	Sales Price			30,000		Sales Price			25,000
25	Less Book Value			0		Less Book Value			0
26	= Gain on Sale			30,000		= Gain on Sale			25,000
27									
28	**Tax on Gain**					**Tax on Gain**			
29									
30	Gain on Sale			30,000		Gain on Sale			25,000
31	Tax Rate			0.15		Tax Rate			0.15
32	Tax Due			4,500		Tax Due			3,750

Table 6: Depreciation Computations (Continued)

K	L	M	N	O	P	Q	R	S	T
2	**MACRS 5 Year**					**39 Year Real Estate**			
3									
4	**Depreciation Taken**					**Depreciation Taken**			
5									
6	**Year**	**Percentage**	**Cost**	**Depreciation**		**Year**	**Percentage**	**Cost**	**Depreciation**
7	0					0			
8	1	0.2	60,000	12,000		1	0.025641	100,000	2,564
9	2	0.32	60,000	19,200		2	0.025641	100,000	2,564
10	3	0.19	60,000	11,400		3	0.025641	100,000	2,564
11	4	0.12	60,000	7,200		4	0.025641	100,000	2,564
12	5	0.11	60,000	6,600		5	0.025641	100,000	2,564
13									
14	**Total Depreciation Taken**			56,400		**Total Depreciation Taken**			12,821
15									
16	**Book Value**					**Book Value**			
17									
18	**Cost of Machine**			60,000		**Cost of Machine**			100,000
19	**Less Depreciation Taken**			56,400		**Less Depreciation Taken**			12,821
20	**= Book Value**			3,600		**= Book Value**			87,180
21									
22	**Gain on Sale**					**Gain on Sale**			
23									
24	**Sales Price**			60,000		**Sales Price**			90,000
25	**Less Book Value**			3,600		**Less Book Value**			87,180
26	**= Gain on Sale**			56,400		**= Gain on Sale**			2,821
27									
28	**Tax on Gain**					**Tax on Gain**			
29									
30	**Gain on Sale**			56,400		**Gain on Sale**			2,821
31	**Tax Rate**			0.15		**Tax Rate**			0.15
32	**Tax Due**			8,460		**Tax Due**			423

This table shows depreciation computations. The spreadsheet calculates all items in this table.

Table 6F: Depreciation Computations (Formulae Display)

A	B	C	D	E	F	G	H	I	J
2	MACRS 3 Year					SL 5 Year			
3									
4	Depreciation Taken					Dep. Taken			
5									
6	Year	%	Cost	Depreciation		Year	%	Cost	Depreciation
7	0					0			
8	1	0.33	='S1'!$C$89	=C8*D8		1	0.2	='S1'!$C$91	=H8*I8
9	2	0.45	='S1'!$C$89	=C9*D9		2	0.2	='S1'!$C$91	=H9*I9
10	3	0.15	='S1'!$C$89	=C10*D10		3	0.2	='S1'!$C$91	=H10*I10
11	4	0.07	='S1'!$C$89	=C11*D11		4	0.2	='S1'!$C$91	=H11*I11
12	5	0	='S1'!$C$89	=C12*D12		5	0.2	='S1'!$C$91	=H12*I12
13									
14	Total			=E8:E12		Total			=J8:J12
15									
16	Book Value					Book Value			
17									
18	Cost of Machine			=D8		Cost of Machine			=I8
19	Less Depreciation Taken			=E14		Less Depreciation Taken			=J14
20	= Book Value			=E18-E19		= Book Value			=J18-J19
21									
22	Gain on Sale					Gain on Sale			
23									
24	Sales Price			='S1'!H166		Sales Price			='S1'!H167
25	Less Book Value			=E20		Less Book Value			=J20
23	= Gain on Sale			=E24-E25		= Gain on Sale			=J24-J25
27									
28	Tax on Gain					Tax on Gain			
29									
30	Gain on Sale			=E26		Gain on Sale			=J26
31	Tax Rate			='S1'!$C$6		Tax Rate			='S1'!$C$6
32	Tax Due			=E30*E31		Tax Due			=J30*J31

This table shows formulae for calculated variables, firm value and financial ratios. Worksheet 'S1' contains all calculations except depreciation. Worksheet 'DP' contains depreciation computations. The spreadsheet calculates all items without user intervention.

Table 6F: Depreciation Computations (Formulae Display) (Continued)

K	L	M	N	O	P	Q	R	S	T
2	MACRS 5 Year					39 Year Real Estate			
3									
4	Depreciation Taken					Depreciation Taken			
5									
6	Year	%	Cost	Depreciation		Year	%	Cost	Depreciation
7	0					0			
8	1	0.2	='S1'!$C$93	=M8*N8		1	0.025641	='S1'!$C$95	=R8*S8
9	2	0.32	='S1'!$C$93	=M9*N9		2	0.025641	='S1'!$C$95	=R9*S9
10	3	0.19	='S1'!$C$93	=M10*N10		3	0.025641	='S1'!$C$95	=R10*S10
11	4	0.12	='S1'!$C$93	=M11*N11		4	0.025641	='S1'!$C$95	=R11*S11
12	5	0.11	='S1'!$C$93	=M12*N12		5	0.025641	='S1'!$C$95	=R12*S12
13									
14	Total Depreciation Taken			=O8:O12		Total Depreciation Taken			=T8:T12
15									
16	Book Value					Book Value			
17									
18	Cost of Machine			=N8		Cost of Machine			=S8
19	Less Depreciation Taken			=O14		Less Depreciation Taken			=T14
20	= Book Value			=O18-O19		= Book Value			=T18-T19
21									
22	Gain on Sale					Gain on Sale			
23									
24	Sales Price			='S1'!H168		Sales Price			='S1'!H169
25	Less Book Value			=O20		Less Book Value			=T20
23	= Gain on Sale			=O24-O25		= Gain on Sale			=T24-T25
27									
28	Tax on Gain					Tax on Gain			
29									
30	Gain on Sale			=O26		Gain on Sale			=T26
31	Tax Rate			='S1'!$C$6		Tax Rate			='S1'!$C$6
32	Tax Due			=O30*O31		Tax Due			=T30*T31

This table shows formulae for calculated variables, firm value and financial ratios. Worksheet 'S1' contains all calculations except depreciation. Worksheet 'DP' contains depreciation computations. The spreadsheet calculates all items without user intervention.

CONCLUDING COMMENTS

This paper presents pro-forma financial statements. Users enter information for managerial determined variables only. The template produces all other computations automatically. Throughout the template, each time a user adjusts an account value, the remaining accounts automatically reflect the change. The template does not require plug figures and does not result in circular references. Users must simply enter figures into the initial balance sheet that produce an equality between assets and liabilities plus equity. With this condition met, regardless of user inputs, the remaining financial statements will balance.

The financial template was developed, used and tested over a period of 20 years. Experience suggests that most undergraduate students lack the capability to develop the financial analysis without some level of assistance. By utilizing the tool presented here, students easily produce the financial analysis and turn their focus to adjustments that reflect the reality of their business and interpreting the results.

The template presented incorporates some assumptions resulting in some limitations. First, the analysis offers only four depreciation methods. Future developments might include additional methods of depreciation. The template incorporates annual analysis that may not meet the needs of all users. Future research might extend the template to permit monthly analysis. Users wishing to obtain the electronic template version may contact the author.

REFERENCES

Alzubaidi, R. (2014) "Spreadsheets-based Modelling for Financial Analysis Ratios," *International Journal of Economics and Accounting*, vol. 5(3) p. 216-228

Arnold, T. (2011) "Connecting Balance Sheet Plugs: A New Integrated Presentation of Pro Forma Analysis," Available at SSRN: https://ssrn.com/abstract=1923672

Cheremushkin, S.V. (2010) "Long-Term Financial Statements Forecasting. Reinvesting Retained Earnings," *The Valuation Journal,* Vol. 5(2) p. 46-87

Chopra, A. S. P. Masih, A. Chugh, P. Bidkar, M. Navani (2015) "Financial Statement Forecaster," U.S. Patent Application, 20150363888

Desanctis, G., and S.L. Jarvenpaa (1989) "Graphical Presentation of Accounting Data for Financial Forecasting: An Experimental Investigation," *Accounting, Organizations and Society,* Vol. 14(5-6), p. 509-525.

Drougas, A.M. and A.C. Johnson (2004) "Use of Simulation to Enhance Undergraduate Financial Forecasting Education," *Journal of Financial Education*, vol. 30(Summer), p. 26-43

Erwin, A., S. Fotheringham and C. McGuinness (1998), "Method and System of Financial Spreading and Forecasting," U.S. Patent US6249770 B1

Jalbert, Terrance (2002) "Pass-Through Taxation and the Value of the Firm," *The American Business Review*, Vol. 20(2), June, p. 47-54

Jalbert, T., J.E. Briley and M Jalbert, (2012) "Forecasting Financial Statements using Risk Management Associates Industry Data," *Business Education and Accreditation,* Vol. 4(1) p. 123-134

Kerry, F. (2010) "Method and Systems for Forecasting Financial Statements and Analysis There of," U.S. Patent US20100161471

Miller, Merton, "Debt and Taxes," *Journal of Finance*, May 1977, pp. 261-275

Paquette, P.C. (2000), "Method and System for Analyzing the Use of Profitability of an Organization," U.S. Patent US6850897

Risk Management Associates "Annual Statement Studies"

Vélez-Pareja, I. and J. Tham (2008) "Prospective Analysis: Guidelines for Forecasting Financial Statements," downloaded from SSRN November 8, 2016: ssrn.com/abstract=1026210

Vélez-Pareja, I. (2010) "Risky Tax Shields and Risky Debt: A Monte Carlo Approach," available at: https://ssrn.com/abstract=1630056

Vélez-Pareja, I. and J. Tham (2011) "Forecasting Financial Statements with No Plugs and No Circularity," *The IUP Journal of Accounting Research & Audit Practices,* Vol. X(1), p. 38-68

Vorkink, K. and K. Workman (2016) "Introduction to Valuation and Discounted Cash Flow Methods," working paper, downloaded November 8, 2016 from www.marriottschool.net

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