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A Data Mining Model or an Effective Trading System

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Abstract

This research identifies the weight and threshold of financial statement ratios for predicting the future stock direction. The predictions are on a quarterly basis. The paper takes a contrarian strategy position. The investors may use the results during the fundamental analysis phase of an investment. Several Data mining models are used to identify the most relevant variables, with strongest predictability. The results suggested that the Association rule model have a 71.43% accurate predictability on the stock direction looking at a handful number of variables. We placed our analysis on the published financial statement for five previous years of 100 companies listed in the S&P 500 index.

Introduction

During the investment decision process, investors attempt to predict the stock price direction. Several analysis methods are used including fundamental analysis (Bushee, 1997), technical analysis (Robert Davis Edwards, 2007) and behavioral analysis (Subrahmanyam, 2008) to reach a decision that is most likely correct. During this analysis process, investors select different variables to look at. The variable selection process is usually a based on the investor experience and strategy.

For instance, Marywood University in Scranton, Pennsylvania, runs The Pacer Investment Fund. The fund is “an innovative answer to the ongoing challenge of translating academic learning into real-world success.” Selected graduate students, under the supervision of department chair, invest real money into the stocks and manage the overall performance of the portfolio. Graduate students receive suggestions for investments from undergraduate students who prepare investment proposals for potential investment in companies traded in stock markets. The Pacer Investment Team tried to invest to the valued stocks with long term profitability, thus mostly follow contrarian strategy (Chan, 1988).

The Pacer Investment fund decisions start with fundamental analysis, where yearly financial statements of each company are discussed; variety of ratios calculated and then decided if the company is in good financial health. The following step is to look at the technical analysis and discuss the stock price development over time, investigating the possibilities that a certain stock price grow in short and long term time period. Lastly, the team of managers discusses potential market changes based on economic, political, cultural, social, and any other factors that influence the investors’ decisions, thus incorporating behavioral analysis to the final decision.

Therefore it is crucial, that each stage in the decision is based on correct and valid data and assumptions.

Research Problem

The challenge in the fundamental analysis phase is identifying the importance of each variable in influencing the stock price direction. In addition, it is a challenge for the investors to determine the threshold each variable should attain to predict if the price of the stock will go in a certain direction with a known level of predictability.

The goal of this paper is to identify the most important variables that affect the stock price direction during the fundamental analysis phase and to determine the associated threshold of each identified variable. In this paper we focus on the contrarian investment strategy to assure a stable growth of the fund with controlled risks.

Related Work

Investigating previous researches on contrarian strategies, many authors describe the strategy by building portfolios of variety of companies based on some variables, and tested their performance over the time. However, none of those papers really explain the reasons for using certain variables in constructing their portfolios. For example, (Chan, 1988), builds portfolios and measures the performance based on Beta and Market Risk Premium, (Josef Lakonishok, 1994) builds portfolios and measures the performance based on Earning/Price Ratio, Book/market Value of Equity, Cash Flow/Price and Growth rates. Another example, (Robert J. Hill, 2010) builds portfolios and measures the performance based on Market Returns, beta, CAPM. However, no clear evidence was found to explain why those particular variables have been selected. Therefore our goal is to determine what variables to consider when analyzing financial statements to achieve our objective. In order to investigate the dependency of variables on the stock prices, many data mining models may be considered including as Naïve Bayes (Greiner, 2001) Decision Trees (Quinlan, 1987), Neural Networks (K I Diamantaras, 1996), Association Rules (Ramakrishnan Srikant, 1996), and Logistic Regression (David W. Hosmer, 2000) among others.

Methodology

We placed our analysis on the published financial statements for five previous years of 500 companies listed in the S&P 500 Index with an initial dataset of 10,000 rows. Quarterly financial statements of each company have been collected and variety of ratios including liquidity management, capital structure management and inventory management. Internal auditing for data validity and completeness took place. In addition since we were interesting to contrarian stocks, only stocks with beta of 1 or small has been considered. Around 8,000 rows of data have been generated that reflect the different ratios for each company published financial statements. The data was then mapped with the stock prices related to each quarter and whether the stock price increased or decreased by comparison to the previous quarter. The different data

mining systems were trained on the 30% of data to learn the dependencies between input data (ratios) and the output (change in prices of stock). Then, the remaining 70% of data was used to predict the output. The system received only ratios and tried predict whether the price of the stock will go up or down. The results were compared to the actual outputs and the accuracy of the each classifier was then calculated.

Results

Association Rules (AS)

This classifier linked association among the variables that are significant for the price increase and for the price decrease. Further exploring the strongest links, the results show that high PE, current ratio, quick ratio, and inventory turnover are ratios with the most influence on the increase of the stock price. The threshold of current ratio ≥ 2.2 , the inventory turnover is between 1.8 and 4.2, the cash ratio ≥ 0.64 and the PE ratio > 14.04

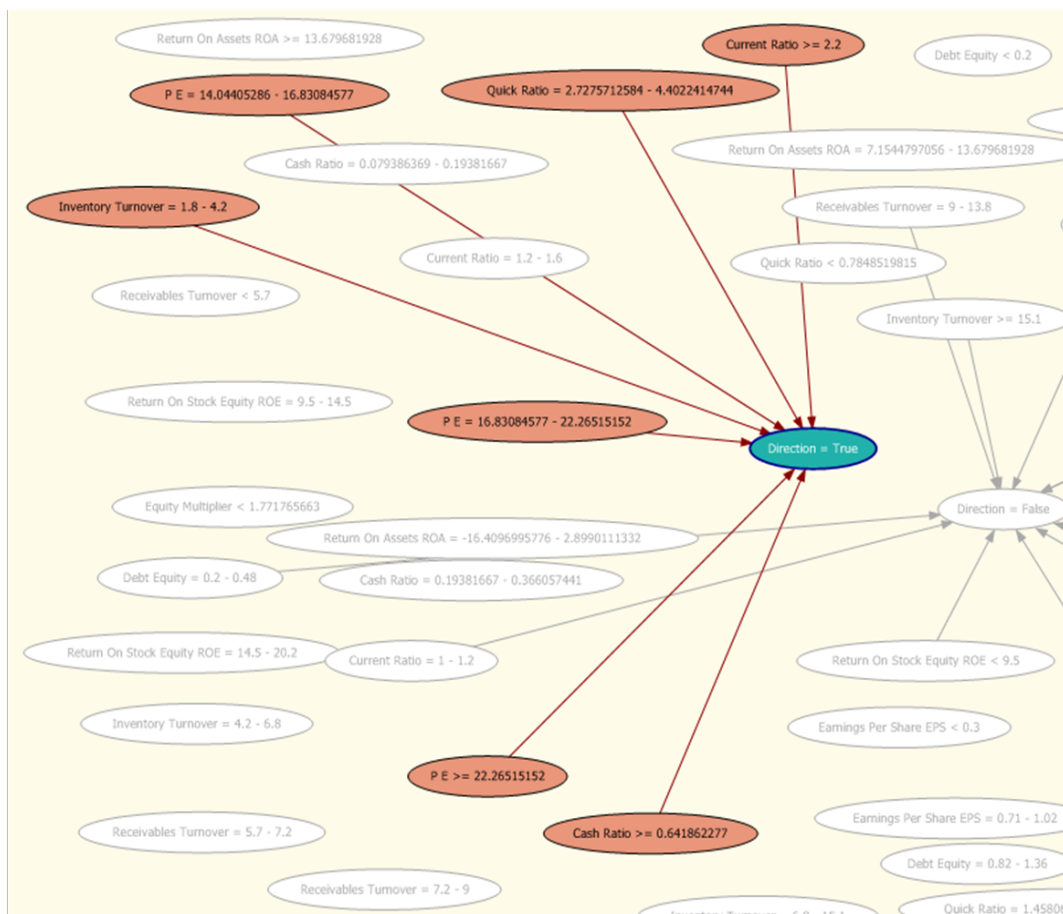


Figure 1

On the other hand, high receivable turnover ratio, small current and cash ratio, low debt equity, low PE among others, are significant in the price decrease.

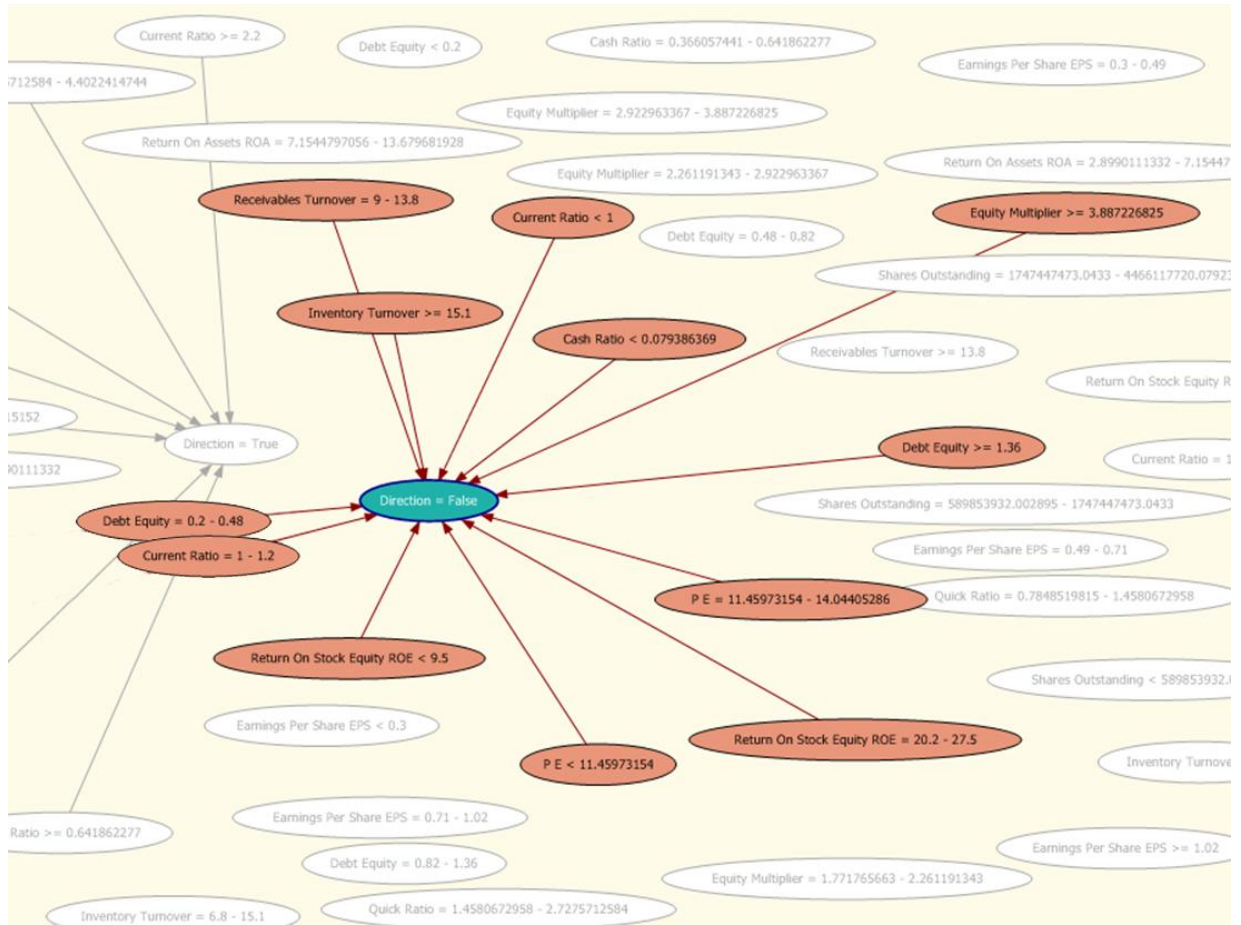


Figure 2

Decision Trees (DT)

Since PE ratio seems to be influential on the price change, we looked into it closely using the Decision tree model. The model shows that PE with value less than 11.46, more than 50% of stocks also decreased in price. On the other hand, with PE of 14 and more, the percentage of

stocks growing in price was much higher. Thus the conclusion is that with higher PE, the stock price tends to grow.

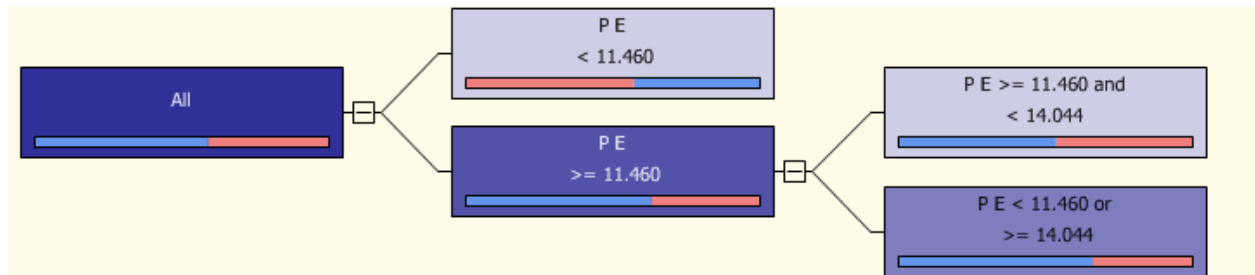


Figure 3

Naïve Bayes (NB)

This model demonstrated similar results regarding to PE. With higher PE, model was predicting increase in the stock price.

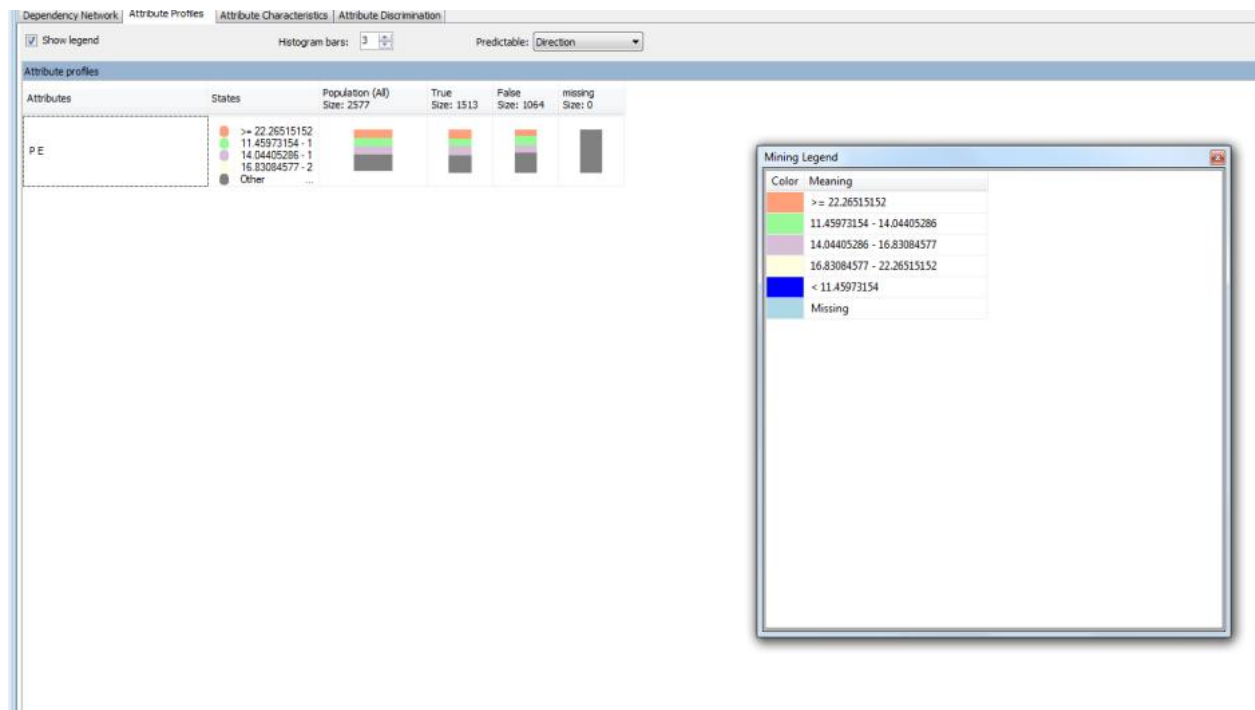


Figure 4

Neural Networking (NN)

Neural network calculated probabilities for each variable and its significance in predicting the stock price. For example in case of the PE, the model predicted, that with value of less than 14, the price will go down in 57% cases.

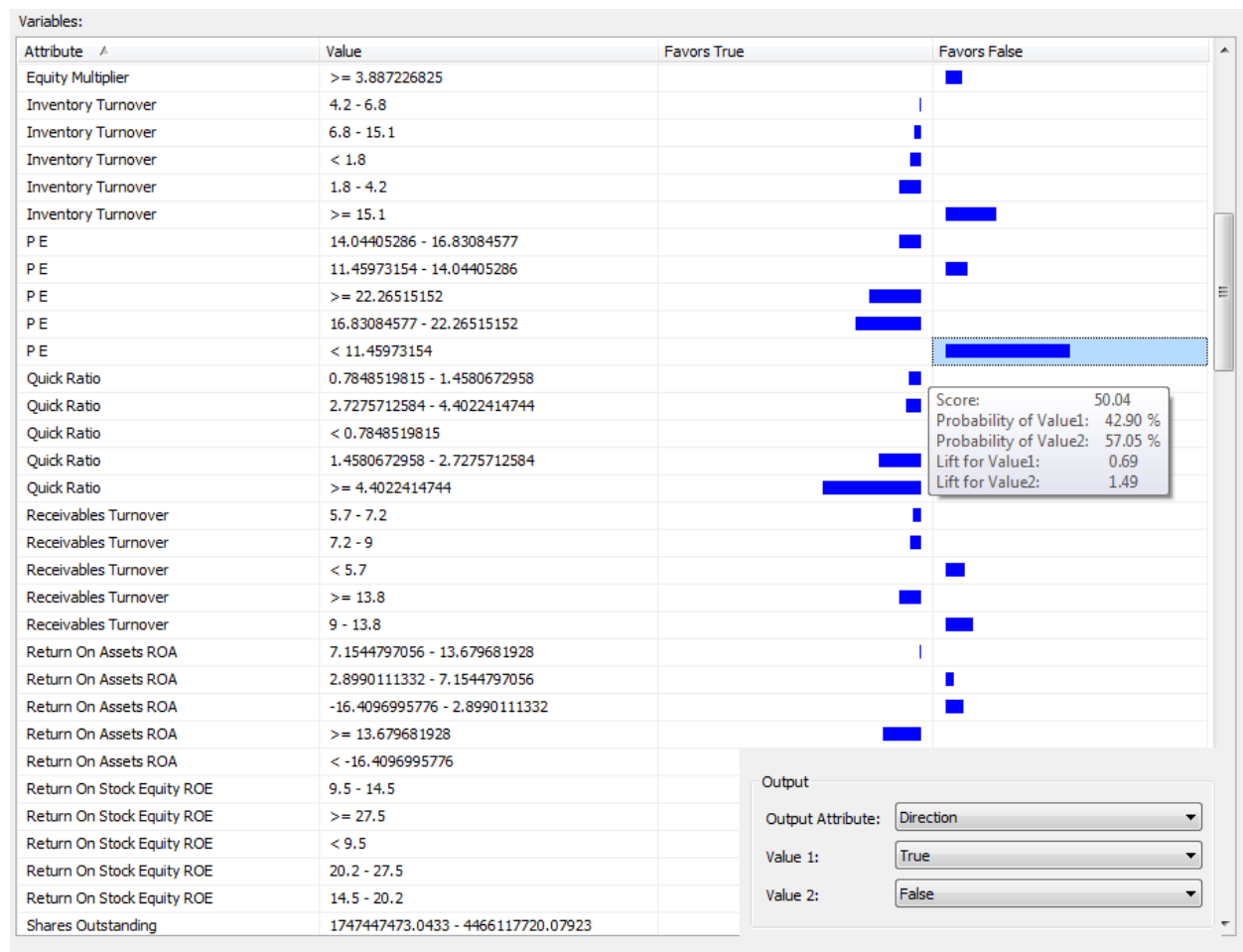


Figure 5

Which model is best?

Each model works in different way to predict the outcomes. Some of them proved to be more accurate and some of them less. The tables bellow shows how many times the models predicted the price correctly and how many times the prediction was incorrect.

Counts for NN on Direction:

Predicted	False (Actual)	True (Actual)
False	121	147
True	318	518

Counts for AR on Direction:

Predicted	False (Actual)	True (Actual)
False	26	21
True	413	644

Counts for NB on Direction:

Predicted	False (Actual)	True (Actual)
False	152	169
True	287	496

Counts for LR on Direction:

Predicted	False (Actual)	True (Actual)
False	158	188
True	281	477

Counts for DT on Direction:

Predicted	False (Actual)	True (Actual)
False	125	105
True	314	560

Figure 6

Summary

The most accurate classifier seems to be Association Rules (AR) with accuracy of 71.43%. This model identified several variables that are significant in the price change.

Series, Model	Score	Population correct	Predict probability
NB	0.61	31.07%	62.43%
AR	0.62	30.98%	71.43%
NN	0.60	30.25%	62.62%
DT	0.64	33.51%	65.53%
LR	0.60	30.07%	63.37%
Ideal Model		50.00%	

Figure 7

Conclusion

Based on the results from the individual models, relevant variables have been identified and the variables with strong weight are determined to predict the stock direction. Furthermore, the thresholds of each variable are determined. In addition, we conclude that Association rule is the most predictable mining model based on the set parameters and investment strategy. The next step would be to refine the selected parameters by adding time series effect, industry variation at different beta levels. Such analysis should also include the technical analysis and behavioral analysis. After determining the final set of variables, we will use optimization techniques to optimizing which stock would have a higher probability of going in favorable direction while maintaining beta and budget constraints.

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Performance of HBCUs on the CPA Examination for the Year 2010

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Abstract

There are over one-hundred Historically Black Colleges and Universities (HBCUs) in the United States. The majority of these HBCUs are located in the southeast section of the United States. HBCUs are a major supplier of CPAs to the profession. Therefore, the performance of candidates from HBCUs should be of interest to various constituents including educators, employers, parents, students and other stakeholders. The purpose of this paper is to provide statistical performance of HBCUs on the CPA examination for the year 2010.

Introduction

There are over one-hundred Historically Black Colleges and Universities (HBCUs) in the United States. The vast majority of these institutions are located in Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, South Carolina, Tennessee, Texas, Virginia, and Washington, D.C. Blacks represent around one percent of all Certified Public Accountants (CPAs). HBCUs are a major supplier of CPAs to the profession. Therefore, the performance of candidates from HBCUs should be of interest to various constituents including educators, employers, parents, students and other stakeholders.

The purpose of this article is to provide a statistical ranking of the performance of the top ten HBCUs on the CPA exam for the year 2010, the latest years available. Since, 1985 the National Association of State Boards of Accountancy (NASBA) has published statistical data on the performance of candidates by colleges and universities on the CPA exam. Starting 2010, NASBA revised how its statistical data will be presented. Previously, in order for an institution to be cited by name in the NASBA statistics, a minimum of five candidates must have sat for the CPA exam. Starting with the 2010 statistics, a minimum of forty (40) testing events must have sat for the CPA exam. A testing event refers to an attempt by a candidate to take a section of the CPA exam. The CPA exam consists of the following sections: Auditing and Attestation (AUD), Business Environment and Concepts (BEC), Financial Accounting and Reporting (FAR), and Regulation (REG). The source of all data presented is the NASBA's Candidate Performance on the Uniform CPA Examination: Reports and Commentary on the 2010 CPA Examination, 2011 Edition.

Literature Review

There has been limited research on the performance of candidates from HBCUs. In a 1991 article, Thompson cited specific HBCUs on their performance for the year 1990. In 1995, Thompson and Sykes published a follow-up article on the performance of HBCUs on the CPA exam for the period 1986 to 1993, again citing specific HBCUs. The results reflected when the CPA exam was administered in a paper and pencil format.

Beginning April 2004, the CPA exam changed to a computerized format. It is now administered continuously each quarter of the year. Many data collection issues had to be resolved to get reliable data on the performance of HBCUs on the CPA exam. Thus in 2011, Thompson and Marshall published an article on the performance of HBCUs for the years 2008 and 2009. For the year 2008, the top ten HBCUs were Florida A&M, Alabama A&M, Clark-Atlanta, Howard, Hampton, Tennessee State, North Carolina A&T, Bowie State, Jackson State and Southern-Baton Rouge. For the year 2009, the top ten HBCUs were Howard, Tennessee State, Florida A&M and Clark-Atlanta, Jackson State, Hampton, North Carolina A&T, Southern-Baton Rouge, Langston, and CUNY Medger Evers. However, the results only reflected the top ten HBCUs with the largest number of candidates sitting for the CPA exam. Starting 2010, NASBA revised how its statistical data will be presented. This served as the foundation for this article.

The CPA Exam

Historical Overview

The first CPA exam was administered by the Regents of the University of the State of New York on December 15 and 16, 1896. There were only three people that passed this first CPA exam. A grandfather clause gave experienced practitioners one year to become CPAs without taking the examination. Under this provision, 108 CPA certificates were granted to these individuals with the numbering of the certificates based on the alphabetical order of the experienced practitioner last name. Therefore, Frank Broaker became the first CPA in the United States. Other notable firsts include Christine Ross who became the first woman to pass the CPA exam in 1898, and John W. Cromwell, Jr. who became the first Black to pass the CPA exam in 1921.

Over the years, there have been many changes and improvements implemented to the format of the CPA exam. However, the exam has remained extremely challenging based on its content. Initially, the CPA exam was nineteen and half hours long over two and half days. In 1994, the CPA exam was shortened to fourteen hours for all four parts over two days. Starting 2004, the CPA exam is administered in a computerized format and exam takers have an eighteen month rolling window to pass all four parts of the CPA exam. One thing that has remained constant with the CPA exam over the years is that an exam taker must have a score of seventy-five (75) on each part in order to pass the CPA exam.

In conclusion, there have been some significant changes to the format of the CPA exam over time, but this rigorous exam remains an important test to identify those individuals who processes the basic core competencies to be called a Certified Public Accountant (CPA).

Quantity versus Quality

Testing Events

NASBA in 2010 changed its methodology for reporting its data on the performance of candidates on the CPA exam. Previously, an institution must have a minimum of five (5) candidates sitting for a section of the CPA exam to be cited by name. This applied to both “first-time” candidates and “repeat” candidates. First-time candidate is determined at the section level. If a candidate takes a section for the first time, that candidate is considered a first-time candidate for that section only. All subsequent taking of that section, that candidate would be considered a repeat candidate. Thus with the computerization of the examination, a candidate might be a first-time candidate for one or more sections and a repeat candidate for other sections.

This was replaced with a minimum of forty (40) testing events to be cited by name in the NASBA statistics. A testing event refers to an attempt by a candidate to take a section of the CPA exam. Thus, the starting point to analyze the performance of HBCUs on the 2010 CPA exam was to identify the HBCUs that met the minimum of forty (40) testing events to be cited by name in the NASBA statistics. The top ten “testing events” HBCUs are:

1- -Howard	270	6- -Tennessee State	85
2- -Jackson State	158	7- -Clark-Atlanta	80
3- -Florida A&M	155	8- -Texas Southern	68
4- -Hampton	142	9- -Alabama A&M	59
5- -North Carolina A&T	130	9- -North Carolina Central	59

Howard was the clear leader with 270 testing events, followed by Jackson State and Florida A&M with 158 and 155 respectively. Only seventeen (17) HBCUs met the minimum of forty (40) testing events to be cited by name. However, the top ten testing events universities constituted 78.6% of the total HBCUs cited.

Unique Candidates

To become a CPA, a candidate must first sit for the CPA examination. The starting point was to identify the top ten HBCUs with the largest number of candidates sitting for the CPA exam. The top ten “unique candidate” HBCUs are:

1- -Howard	108	6- -Clark-Atlanta	38
2- -Florida A&M	62	7- -Tennessee State	37
3- -Jackson State	55	8- -Texas Southern	30
4- -Hampton	49	9- -North Carolina Central	22
5- -North Carolina A&T	48	10- -Southern-Baton Rouge	21

Again, Howard was the clear leader with 108 unique candidates, followed by Florida A&M and Jackson State with 62 and 55 respectively. Nine of the universities listed in the “total events” category were also listed in the “unique candidates” category in their relative rank order. The only change was the inclusion of Southern-Baton Rouge to replace Alabama A&M in the tenth ranking. These top ten unique candidate universities constituted 80% of the total of all HBCUs cited.

Total Events Pass Rate

The above results of “total events” and “unique candidates” are consistent at 78.6% and 80% respectively. However, taking a testing event is not the same as passing a testing event. Again, a testing event refers to an attempt by a candidate to take a section of the CPA exam. A unique candidate is an individual sitting for the CPA exam. This is the dichotomy between quantity versus quality. The top ten “total events pass rate” HBCUs are:

1- -North Carolina A&T	38.5%	6- -Clark-Atlanta	30.0%
2- -North Carolina Central	37.3%	6- -Howard	30.0%
3- -Morehouse	35.7%	8- -Prairie View	27.3%
4- -Southern-Baton Rouge	34.5%	9- -Jackson State	27.2%
5- -Florida A&M	31.0%	10- Delaware State	25.5%

North Carolina A&T and North Carolina Central were ranked five and nine in the two previously cited categories respectively. However, in this ranking, these two universities are one and two respectively. Morehouse was not listed in the previous categories, but is number third in pass rates. Morehouse has a smaller quantity of students taking the CPA exam, but higher quality of students passing the CPA exam. The other universities cited in the two previous categories and this category are Southern-Baton Rouge, Florida A&M, Clark-Atlanta, Howard and Jackson State. Prairie View and Delaware State complete the top ten HBCUs.

These results are not a definitive indicator of the overall quality of the accounting program at any HBCU. A quality program produces graduates that are technically knowledgeable, but also processes analytical skills, communication skills and interpersonal skills to be successful in an increasingly complex business world. Passing the CPA exam is just one indicator of quality.

Average Score

Another indicator of the quality of the candidates from HBCUs is the average score on the CPA exam for events taken. The top ten “average score” HBCUs are:

1- -North Carolina A&T	70.5%	6- -Florida A&M	65.1%
2- -Morehouse	68.9%	7- -Hampton	64.6%
3- -Southern-Baton Rouge	66.7%	8- -North Carolina Central	64.4%
4- -Morgan State	65.7%	9- -Norfolk State	64.3%
5- -Jackson State	65.2%	10-Howard	64.2%

Again, North Carolina A&T was ranked number one, followed by Morehouse and Southern-Baton Rouge. The other universities cited in the “total event pass rate” are Jackson State, Florida A&M, North Carolina Central and Howard. Morgan State, Hampton and Norfolk State complete the top ten HBCUs.

To interpret these results, please note that the number of unique candidates taking a testing event varied upon HBCUs. Computerization of the examination allows a candidate to take one or more testing events at a time. This variation was consistent across all HBCUs, thus the rankings were not weighted to reflect these differences.

The above results clearly reflect that HBCUs have accounting programs that prepares students to be successful on the CPA exam. However, of greater concern is the issue of quantity. To remain relevance to its various stakeholders, HBCUs must increase the number of candidates sitting for the CPA exam. There are many programs devoted to increasing the number of accounting majors. For example, scholarships are offered by the American Institute of CPAs, various state societies, Becker CPA Review, and the National Association of Black Accountants. All of these efforts and others must be supported financially and current CPA must mentor the next generation of CPAs.

Theory versus Practice- -AUD-BEC-FAR-REG

Auditing and Attestation- -AUD

The Auditing and Attestation- -AUD section of the CPA exam tests knowledge and understanding of professional standards related to auditing, attestation and assurance engagements, and accounting and review services. This section also tests candidate knowledge of professional responsibilities of CPAs including ethics and independence. In addition, candidates are required to demonstrate the skills required to apply that knowledge in performing auditing and attestation tasks as CPAs. The top ten “AUD” HBCUs are:

1- -Delaware State	80.0%	6- -Morehouse	38.5%
2- -North Carolina A&T	62.1%	7- -Howard	37.7%
3- -Alabama A&M	45.5%	8- -Morgan State	37.5%
4- -Norfolk State	41.7%	9- -Prairie View	36.4%
5- -Hampton	39.4%	10- -North Carolina Central	33.3%
		10- -Tennessee State	33.3%

The national passing percentage for the Auditing and Attestation- -AUD section of the CPA exam was 47.8%. Delaware State and North Carolina A&T performances were above the national passing percentage. The remaining HBCUs pass rate varied from 45.5% for Alabama A&M to 33.3% for Tennessee State. This is a clear indicator that HBCUs candidates are passing this section of the CPA exam on a consistent basis in relationship with their peer institutions. However, there is significant room for improvement and HBCUs must improve their pass rates.

Business Environment and Concepts- -BEC

The Business Environment and Concepts- -BEC section of the CPA exam tests knowledge and skills necessary demonstrate an understanding of corporate governance; economic concepts essential to understanding the global business environment and its impact on an entity’s business strategy and financial risk management; financial management processes; information systems and communications; strategic planning; and operations management. In addition, candidates are required to apply that knowledge in performing audit, attest, financial reporting, tax preparation, and other professional responsibilities as CPAs. The top ten “BEC” HBCUs are:

1- -Morehouse	50.0%	6- -Jackson State	26.2%
2- -Florida A&M	40.0%	7- -Howard	26.0%
3- -North Carolina Central	36.8%	8- -North Carolina A&T	23.3%
4- -Clark-Atlanta	31.8%	9- -Hampton	21.7%

5- -Southern-Baton Rouge	28.6%	10-Delaware State	20.0%
		10-Prairie View	20.0%

The national passing percentage for the Business Environment and Concepts- -BEC section of the CPA exam was 47.3%. Morehouse was the only HBCU above the national passing percentage. The remaining HBCUs pass rate varied from 40.0% for Florida A&M to 20.0% for Delaware State and Prairie View. This twenty (20) point differential is a point of concern that HBCUs must address in its preparation of candidates for the CPA exam. HBCUs pass rates must increase.

Financial Accounting and Reporting- -FAR

The Financial Accounting and Reporting- -FAR section of the CPA exam test knowledge and understanding of the financial reporting framework used by business enterprises, not-for-profit organizations, and governmental entities. In addition, candidates are required to demonstrate the skills required to apply that knowledge in performing financial reporting and other tasks as CPAs. The top ten “FAR” HBCUs are:

1- -North Carolina A&T	41.9%	6- -Florida A&M	26.2%
2- -North Carolina Central	33.3%	7- -Prairie View	25.0%
3- -Southern-Baton Rouge	31.3%	8- -Clark-Atlanta	23.5%
4- -Howard	30.2%	9- -Tennessee State	22.6%
5- -Texas Southern	30.0%	10-Alabama A&M	20.0%

The national passing percentage for the Financial Accounting and Reporting- -FAR section of the CPA exam was 47.8%. No HBCUs were above the national passing percentage. The top HBCU was North Carolina A&T at 41.9% and the lowest HBCU was Alabama A&M at 20.0%. The differential is twenty-two (22) points that should be of great concern to HBCUs. Traditionally, the “FAR” section of the CPA exam is deemed to be the most difficult, thus the results are understandable but unacceptable. HBCUs must increase their academic rigor in this topical area to increase their pass rates.

Regulation- -REG

The Regulation- -REG section of the CPA exam tests knowledge and understanding of ethics, professional and legal responsibilities, business law, and federal taxation. In addition, candidates are required to demonstrate the skills required to apply that knowledge in performing their responsibilities as CPAs. The top ten “REG” HBCUs are:

1- -Southern-Baton Rouge	54.5%	6- -Clark-Atlanta	33.3%
2- -North Carolina Central	43.8%	6- -North Carolina A&T	33.3%
3- -Jackson State	38.1%	6- -Tennessee State	33.3%
4- -Morehouse	36.4%	9- -Prairie View	30.0%
5- -Morgan State	36.4%	10-Howard	29.3%

The national passing percentage for the Regulation- -REG section of the CPA exam was 50.7%. Southern-Baton Rouge was the only HBCU above the national passing percentage. The remaining HBCUs pass rate varied from 43.8% for North Carolina Central to 29.3% for Howard. The differential is fourteen and half (14.5). Traditionally, the “REG” section of the CPA exam is deemed to be least difficult to pass, thus the results are unacceptable. HBCUs must increase their academic rigor in this topical area to increase their pass rates.

The ABC Concept

To improve the performance of all HBCUs on the CPA exam, the authors recommend the adoption of the ABC concept of teaching accounting courses. The ABC concept focuses on teaching accounting theory and practice. It is imperative that students are able to learn new concepts using a consistent framework. This allows students to comprehend new material without getting bogged down into the weeds of details rules and procedures. The meaning of this acronym is:

“**A**” is for **A**llocation;

“**B**” is for **B**ook valuation; and

“**C**” is for **C**lassification.

The “**A**” (allocation) concept is used to explain the relationship between the balance sheet and the income statement. Students are first taught that all items on the balance sheet will be allocated to the income statement at some future date. For example, inventory and cost of goods sold are similar and building and depreciation are similar. These are costs that must be allocated from the balance sheet to the income statement under the accrual basis of accounting. Thus FIFO and LIFO are just the mechanics of completing this allocation process. The same can be said of straight-line and double-declining balance methods of depreciation. The goal is to teach students the allocation concept and not the mechanics. Afterward, students can apply “allocation” concept to the other balance sheet and income statement accounts without getting bogged down into the weeds of details rules and procedures. Thus students are able to learn more theoretical concepts themselves and use technology to solve practice problems more effectively.

The “**B**” (book valuation) concept is used to explain that the valuation bases used to measure transactions is either historical cost or fair value. Accounting textbooks use terms such as historical cost, amortized cost, present value, discounted cash flows, and fair value as separate valuation basis. Students are often confused and mislead into thinking that these are different valuation basis and not just a variation of historical cost or fair value. Once students understand the book valuation concept, students can easily applied it to other measurements without further explanation, thus students are able to learn more theoretical concepts themselves without getting bogged down into the weeds of practice problems.

The “**C**” (classification) concept is used to explain that accounting information would be meaningless to creditors, investor and others without proper classification. Proper classifications enhance the decision-making process for users. Students are taught to initial classify accounts into the following categories: asset, liability, equity, revenue (gain), and expense (loss). Thus, when a new account is introduce in the textbook, students are taught to immediately classify that account. For example, if an account is classified as an asset or liability, students know immediately that the account would be on the balance sheet and subject to the allocation concept. In addition, students are further instructed to sub-classify these assets or liabilities. For example, assets can be further divided into the following classifications: current, investments, operational, intangibles and others. Liabilities can be sub-classified into current and long-term liabilities. A similar classification is taught for revenue and expense accounts using the multiple-step format of classification. Thus again, when students are able to understand the classification concept, students are able to learn more conceptual material themselves and use technology to solve practice problems more effectively with the use of technology.

The acronym continues with the “**Big D**” for disclosure. Accounting information should not mislead creditors or investors in their decision making process. To insure transparency to all parties, students are taught that all significant allocation, book valuation, and classification issues must be disclosed.

In short, to pass the CPA exam, a candidate must have a solid foundation in acceptable accounting theory. In addition, a candidate must be able to apply that theory to accounting practices using technology effectively. With limited resources and other constraints, HBCUs should adopt the ABC concept of teaching accounting courses to improve their pass rate on the CPA exam.

Overall Ranking

The HBCUs ranking listed on the above four sections (AUD- -BEC- -FAR- -REG) of the CPA exam constitute 97.6% of all unique candidates taking the CPA exam and 97.2% of the total events taken of all HBCUs cited in the NASBA statistics. Thus these HBCUs constitute the majority of all HBCUs sitting for the CPA exam and an overall indicator of the performance on all HBCUs.

The determination of the overall ranking of HBCUs on the CPA exam presented many challenges. The size of institutions varies, the number of accounting majors varies, the number of students taking the exam also varies, and their financial resources. The above differences do not take into consideration the quantity and quality of the faculty. Thus the authors assume that these differences are randomly distributed upon the HBCUs.

In determining the overall ranking, the author sums the individual ranking per each section (AUD- -BEC- -FAR- -REG) of the CPA exam. The results were listed from low to high, with low representing the best overall performance. Thus for the year 2010 the overall ranking of HBCUs on the CPA exam are:

Top Tier

1- -North Carolina Central	17.5
2- -North Carolina A&T	18.0

Upper Middle Tier

3- -Southern-Baton Rouge	25.0
4- -Howard	27.5
5- -Morehouse	28.0

Lower Middle Tier

6- -Florida A&M	33.0
7- -Clark-Atlanta	34.0
8- -Delaware State	35.5
8- -Prairie View	35.5
10-Jackson State	37.0
11-Morgan State	37.5
12-Tennessee State	38.5

Lower Tier

13-Alabama A&M	41.0
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14-Hampton	44.5
15-Norfolk State	46.5
16-Texas Southern	48.0

For the year 2010, North Carolina Central was ranked number one and followed very closely by North Carolina A&T in the top tier. In 2010, these two HBCUs separated themselves from the others. The upper middle tier of HBCUs consists of Southern-Baton Rouge, Howard, and Morehouse. Collectively, these five HBCUs must be commended for setting an acceptable performance standard on the CPA exam. The lower middle tier and lower tier HBCUs must improve their performances to remain viable.

Conclusion

The CPA certificate offers unlimited opportunity for success in an increasingly complex business world. There have been some significant changes to the format of the CPA exam over time, but this rigorous exam remains an important test to identify those individuals who processes the basic core competencies to be called a Certified Public Accountant (CPA). HBCUs are a major supplier of CPAs to the profession now and in the future. Statistical ranking of performance were presented for the year 2010. Statistics were presented in the following categories: testing events, unique candidates, total events pass rate, and average score. In addition, statistics were presented on the pass rate on the various sections (AUD- -BEC- -FAR- -REG) of the CPA exam.

In summary, for the year 2010, North Carolina Central was ranked number one and followed very closely by North Carolina A&T for their performance on the CPA exam. Other HBCUs performed well on the CPA exam. However, HBCUs need to increase the number of candidates sitting for the CPA exam and increase their passing rate to remain viable. The author recommends that HBCUs adopt the ABC concept for teaching accounting theory and practice. In short, HBCUs must improve their performance on the CPA exam to remain as a major supplier of CPAs to the profession.

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Florida's Poverty at a Glance

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Abstract

Globalization, declining manufacturing jobs, expanding low-wage service, and trade jobs, and weakening of labor market institutions has contributed to the erosion of wages especially for workers without technical or college training here in the United States, particularly in the state of Florida. This paper will examine and assess the troubling trends that threaten Florida's Economic well-being, in global competitive market. It will also assesses and explore, how poverty rates, poverty gaps, educational attainment and income gaps have changed over time in the state's economy. Data will be collected from U.S. Census (USC), U. S. Department of Labor (USDOL), Bureau of Labor Statistics (BLS), American Community Survey (ACS), Florida Department of Education (FDE) and other related sources. This study indicates that, given the staggering state of the economy, the last couple of years, poverty rate has significantly increased both in Florida and the U.S. Florida's poverty rate is some-what higher but lower than that of other neighboring states in the south. Result indicates that the poverty rate gap between the haves and have notes have significantly increased, this might have been attributed due to an inflated population, during the housing boom, when the jobs left the region, so did many job seekers. This study will make some policy recommendations, as how to alleviate poverty, through investing in education, training, and absorbing technology and foreign direct investment for sustainable economic development through an organized national, regional and local effort, to improve the infrastructure and production capabilities of the state.

Introduction

During the 1960s and 1970s, the availability of a low-cost, unskilled, and less educated. Labor force helped attract manufacturing from urban to rural areas. This seemed to have resulted in an apparent decline in rural poverty due to growth and economic vitality brought about by increased employment. However, in the 1980s and 1990s, global market competition and structural changes in the U.S economy plus the rise in high-tech Industries, demanding highly educated workers, made it difficult for rural areas to attract Industries requiring a skilled labor force. The composition of the labor force and the skill which it possesses significantly affect an area's potential for industrial development. These factors to a large extent determine the types and quality of industries which may locate within an area.

The causes of poverty are multifaceted and complex (Duncan, 1992). Nevertheless it has been shown that poverty is inextricably linked to the labor market, income inequalities by race and gender, welfare dependence, single-parent families, presence of pre-school children, low human capital, and lack of earning ability, low annual earnings and economic insecurity. The

structural changes in rural economies are not temporary phenomena, but a situation in which the economic bases of rural communities will be changing constantly as a response to ongoing international forces and national structural economic adjustments (Reeder, 1990). To provide public facilities and services, and to strengthen and diversify the local economy, policy makers and local leaders need to know the incidence of poverty and the nature of income distribution patterns.

Poverty Rates Remained Steady in Most States

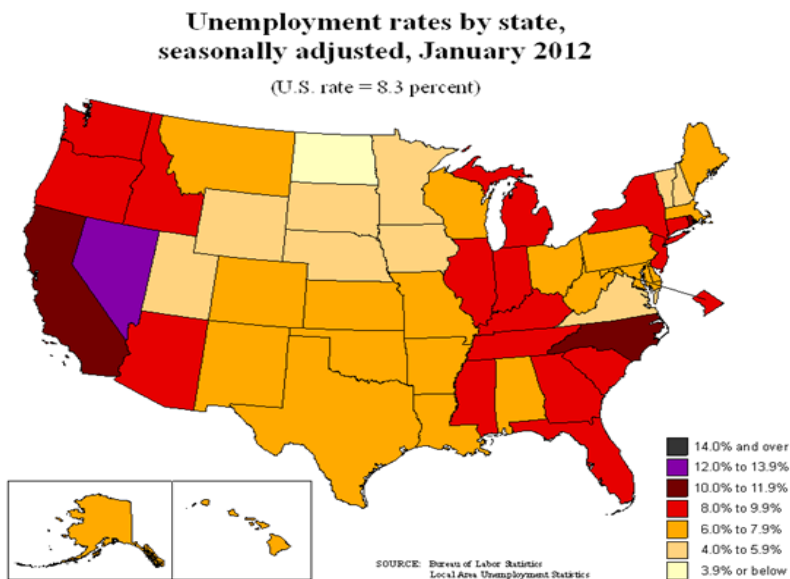
According to the current report from the Census Bureau, nearly one in four Florida children under age 18 live in poverty, higher than the national average and a 1.2 percent increase over the previous year, according to data released last week by the U.S. Census. Translated in real terms, the national poverty rate is a family of four with an annual income of \$22,314.

Poverty Continues to be a Stubborn Problem - In 1990, Florida's poverty rate was 12.7%; it declined slightly to 12.5% in 2006 and improved further to 11.1% in 2005, well below the national average. Florida's poverty rate has climbed and now equals the national rate. The number of Floridians living in poverty increased by about 180,000 between 2006 and 2007, respectively. At this level, about one in every 10 people living in Florida receives food stamps. The gap in income between the most affluent Floridians and those at the bottom rung of the economic ladder is among the biggest in the U.S.

The data also show the depth to which poverty level affects racial and ethnic minorities in Florida. Among blacks, 38.6 percent of all children live in poverty. Among those who list themselves as "other race," the poverty rate is 36.3 percent. Among those families who report themselves of Hispanic origin, the rate is 28.3 percent. More than one in five children in the U.S. lived in poverty in 2010, the Census reports. That's the highest rate since the Census Bureau started measuring through the annual American Community Survey in 2001.

"Children who live in poverty, especially young children, are more likely than their peers to have cognitive and behavioral difficulties, to complete fewer years of education, and, as they grow up, to experience more years of unemployment," the Census said in its report (see figure 1).

Figure 1: Unemployment Rates by States



Source: Florida Department of Education, FEPIP

According to U.S. Department of Labor, and Bureau of Labor Statistics, the current unemployment rate ranged from as low as 3.9 % to as high as 14% respectively. . It is apparent that, as the unemployment increased considerably in the decades of 1990, 2000, and 2012, presumably due to a decline in demand for unskilled rural labor.

Florida's Per Capita Income

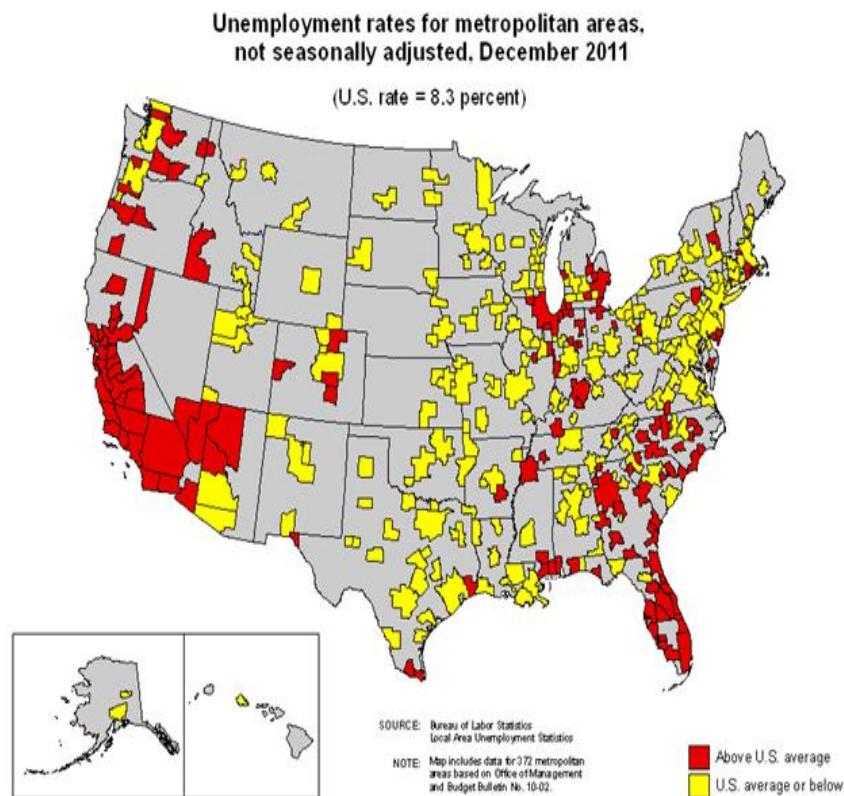
Florida's personal income per capita increased each of the last three years, as did the national average, however, the current Florida's rate of income growth CONTINUE TO decline. Florida's GDP has declined as a percent of the national average, and now Florida ranks 47th in the nation, as real per capita GDP of Florida's businesses and workers continue to fall.

Educational Attainment

One of the most important factors affecting the human resource base of any community is the educational level of its population. The relationship that exists between low educational levels and low income levels has been well documented in different literatures.

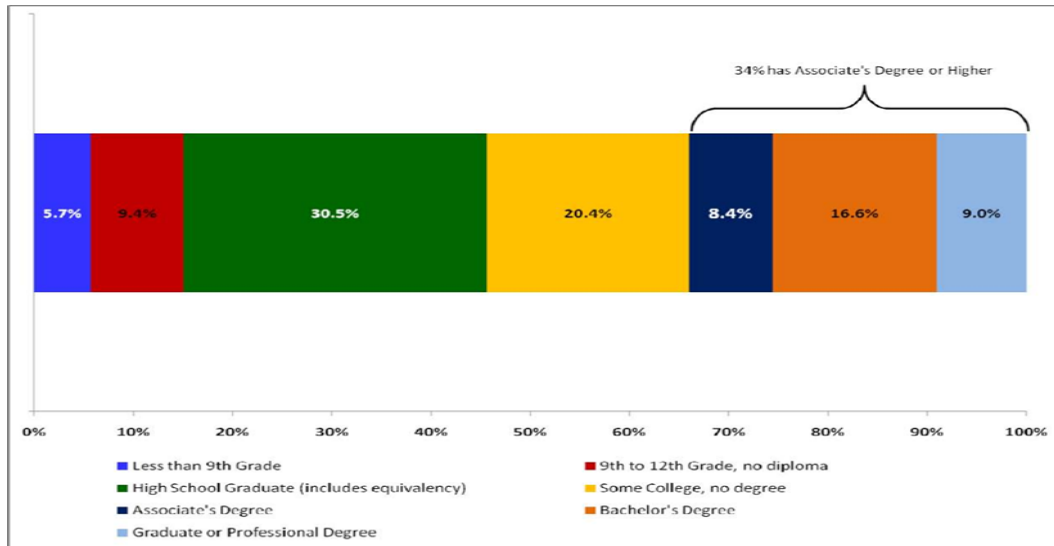
Florida ranks 45th among the states for its high school graduation rate.²⁵ Indicative of this finding is 2007 U.S. Census Bureau data that reports Florida ranks 33rd in the nation for the percent of people 25 years and over who have a high school diploma.

Figure 2: Florida Educational Attainment



Source: Florida department of Education, FEPIP

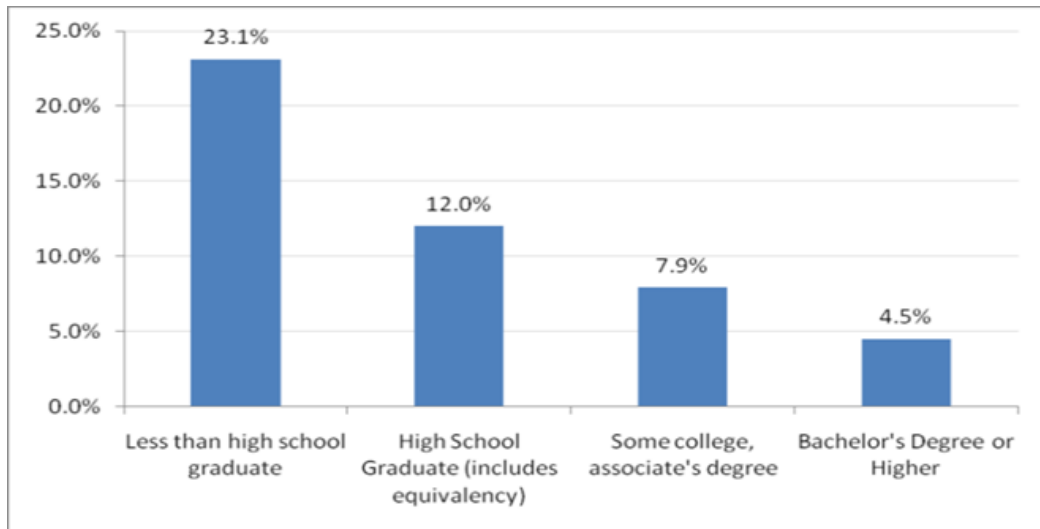
Figure 3: Florida Educational Attainment



Source: U.S. Census Bureau, American Community Survey, 2005-09

Figure 3 shows the educational attainment of individuals in Florida who are 25 years old and over. Fifteen percent (15.1%) have not earned at least a high school diploma. Approximately 30.5% have earned a high school diploma or an equivalency—the most common level of educational attainment in Florida. Next, 20.4% of Floridians have completed some college but have not earned a degree. Finally, 8.4% have earned an associate’s degrees, 16.6% earned bachelor’s degrees, and 9.0% completed graduate or professional degrees. This means that 66% of Floridians have less than an associate’s degree. It should be noted that the ACS only reports educational attainment for those 25 years and older, so younger individuals are not included in the above figure.

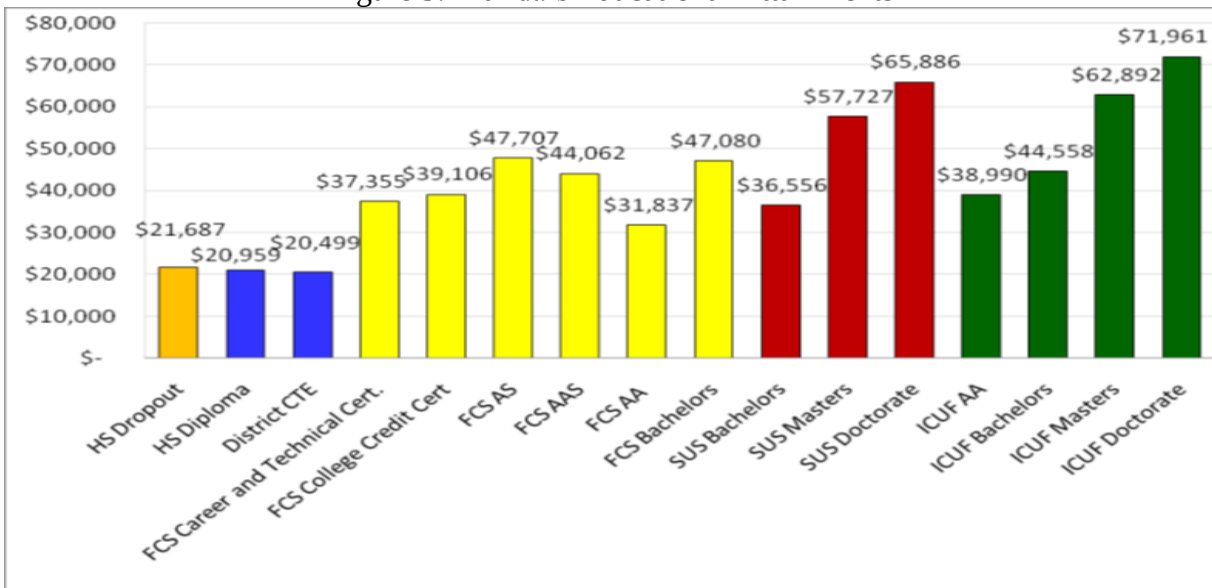
Figure 4: Florida’s Educational Attainment



Source: Florida Department of Education, FEPIP

Figure 4 shows the percent of 2008-09 completers (graduates), by sector and award, who are continuing their education. Approximately 68% of high school graduates were continuing their education, most of them in the (FCS). Similarly, 62% of District Secondary Career and Technical Education (CTE) completers were found continuing their education. For students from the Florida College System (FCS), many graduates from various programs were found continuing their education. The highest proportions of (FCS) completers who are found continuing education are those who have earned College Credit Certificates (58%) and those who earned Associate in Arts (AA) degrees (76%). It is not surprising that the proportion of AA graduates are continuing their education, especially since articulation policies allow students who have earned AA degrees to seamlessly transfer to a bachelor's degree program in the State University System (SUS) or the FCS. At the bachelor's levels (in any sector) the percentage of graduates who continue their education decreases. Seventeen percent (17%) of students who earned their baccalaureate degrees from the FCS were found to be continuing their education, compared to 21% of bachelor degree recipients from the SUS and 6% of those who completed their bachelor's degrees from the Independent Colleges and Universities of Florida (ICUF).

Figure 5: Florida's Educational Attainments



Source: Florida department of Education, FEPIP

Summary

The results reveal that state with higher poverty rates have low median family and per capita income. On the other hand, increases in the level of per capita income in the states contribute to reduce poverty. The main factor that contributes to increase income inequality, according to the results, is the educational level of the states and their respective counties.

Policy Implications/Conclusions

The fact that the annual rates of change in poverty and income inequality can take place simultaneously helps bring awareness to local governments and policy makers of the need to design policies and strategies that could both reduce poverty and income inequality in the United States and its states. For instance, a strategy to reduce income inequality requires simultaneous interventions to promote job creation and entrepreneurship as well as to improve equity in the opportunity of participation in these jobs through improved educational levels.

The study reveals that higher per capita income is associated with reduced poverty. The educational attainment reduces income inequality through equal opportunity). The creation of new jobs may motivate investment in human capital for males and females, resulting in higher educational attainment, which in turn results in higher productivity and wages and higher per capita income, leading to less poverty and income inequality. The solution to preparing Floridians to compete for jobs at regional, state, national and international levels and to improve the state's current economic situation is to encourage and support higher education attainment among its citizens.

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The Measurement of Channel Operations Results by a Comparison with Expectations

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Abstract

The examination of channel operations has traditionally been through the, “Channel Power,” stream of literature (Hunt and Nevin,, 1974; Etgar, 1978; Brown and Frazier, 1978; Kazulis, Spekman and Bagozzi, 1978; John, 1984; Tedeschi, Schlenker and Lindskold, 1971) focusing on this one aspect of marketing channels operation. This clearly gives an update on power issues after each dyadic interaction but does not throw any light on the sociological mechanisms by which channels function (and by which power develops). This research has three goals: first to remove power from the central position and replace it with the sociological mechanisms by which the channel functions and power issues are generated. The second goal is to measure the external uncertainty and its influence on dyadic sociological mechanisms which in turn influence channel operations. The final goal is to measure the results of dyadic interaction by a comparison with expectations.

Introduction

There are three facets to this research. These are briefly described below so that the third part will be better positioned. It is the third facet that is the subject of this paper and originate in part in the first two.

One facet of this research is to suggest two proposed sociological mechanisms at work in the channel to influence its functioning. These have been tentatively identified as: 1.) the manipulation of the buyer through the use of the seller’s promotional activities applied in the dyad. 2) The desire of the buying organization to be associated with a large, prestigious, knowledgeable, skilled, well-known, successful and growing supplier which is in the forefront and has a highly positive image in order to associate these with the distributing organization. The first of these amounts to manipulation by the seller and the second results from voluntary participation by the retailer. This part of the overall conceptualization has already been presented as a proceedings and the questionnaire is ready to be sent out.

The second facet follows from the first. Currently, examination of channel operations through the dyad measure power issues operating in the dyad in a, “power in – power out,” sequence. This second focus is to broaden the influences beyond power alone and include the uncertain environmental in these influences. There is a lengthy tradition in at least three streams of literature which view the handling of environmental uncertainty as the main function of management. These include Organizational Theory (Pheiffer and Salancik), the Sociology of Organizations (Thompson, 1967) and Channel Operations

(Achrol). This second facet of the research has been brought to the point where it is ready for final writing.

Achrol (1988) developed scales to measure the external environment and its influence on management and tested these using a two-tier linkage. From this he recommended the use of the following scales in future research on the external environment's influence on management (in our case, the channel dyad). These were Environmental Concentration, Environmental Capacity, Environmental Diversity and Environmental Dynamism Among Consumers. The future questionnaire will include these scales from Achrol (1978a) to measure external organizational uncertainty which will then be related to the sociological mechanisms which define channel operations.

The final and third facet is the measurement of channel operations results by a comparison with expectations by using the Satisfaction / Disconfirmation Paradigm. This is the section to be reported on in this paper. The writer is seeking guidance in the questionnaire and methodology section.

PROPOSED STUDY OF CHANNEL OPERATIONS BY A COMPARISON WITH EXPECTATIONS (THE SATISFACTION / DISCONFIRMATION PARADIGM)

General

The channel dyad is composed of a buyer and a seller from their respective organizations in which the sociological mechanisms operate and where past dyad meeting evaluations were formed. These evaluations of dyadic interaction are functions of expectations, performance and disconfirmation, all of these being independent constructs. We know that present exchange evaluations and reactions are as important as those prior to the exchange (Babin and Griffin, 1998). This evaluation in the organizational setting is parallel to the expectations / disconfirmation paradigm as used in Consumer Behavior where consumer expectations are compared to product performance. In the consumer setting, performance either confirms expectations (which results in satisfaction), exceeds expectations (+disconfirmation) or fails to reach expectations (- disconfirmation). The present research depends on a parallel application of the expectations / disconfirmation paradigm to the dyadic meeting of the buyer and the seller of the respective organizations. Oliver (1981) posited that satisfaction may be best understood as an evaluation of the surprise inherent in a product acquisition or and/or consumption experience. Here the organizational buyer is the subject evaluating instead of the consumer but there are after exchange evaluations in this case parallel to the consumer case but focused on political economy issues as well as value gained in the exchange.

Post-dyad meeting evaluations are posited to be functions of expectations, performance and disconfirmation. Post-dyadic meeting evaluations = f (expectations, performance and disconfirmation)

The Measurement of Affective Constructs

Satisfaction can be described as an affect resulting from appraisals of a set of experiences but varies from person to person due to different schematic reference points (expectations) (Locke, 1969;

Westbrook, 1980; and Woodruff et al, 1983). The results would meet expectations (satisfaction or business as usual), fail to meet expectations (negative disconfirmation and potential channel conflict) or exceed expectations (positive disconfirmation and potential channel motivation).

Affective measures often suffer from contamination by cognitive beliefs. For instance, a consumer may be very pleased with his recent purchase of a Toyota truck, feeling very positively about the style and vaulted dependability and durability associated with this brand as well as the perceived positive statement it makes about him. At the same time, he may be very disappointed with the mileage the truck gives. So here we have an example of a very positive affect for the purchase but dissatisfaction on one aspect or *cognition* concerning the truck. So we have contamination of the affect measure by a *cognitive* evaluation. We need a measurement device freer from cognitions contamination when measuring affective constructs (Westbrook, 1987). The use of Structural Equation Modeling and Confirmatory Factor Analysis help to overcome problems of face validity (Bagozzi, 1993). Also, Confirmatory Factor Analysis of post-purchase evaluations and reactions support the affective nature of satisfaction rather than a cognitive interpretation (Babin, Darden and Griffin, 1994).

Another example of construct contamination is contamination by related constructs (see Table 1). When using SEM and CFA, measurement error and contamination of the satisfaction construct by related constructs such as performance, dissonance, disconfirmation, happiness and decision regret are much lessened.

Many research articles into affective measures use bipolar scales (ex, pleasant and unpleasant, satisfaction vs. dissatisfaction). There are also studies which report separate positive and negative sides to affective constructs. Under this parallel view, both the positive and negative sides can exist side by side. Emotional measurement scales like PANAS (Positive and Negative Affective Scales) accept the idea that pleasant feelings are not the opposite of unpleasant feelings (Watson, Clark and Tellegen, 1988; Bagozzi, 1993). Unipolar measures of satisfaction show better predictive validity than do conventional bipolar measures of satisfaction (Westbrook and Oliver, 1991). By using two distinct constructs, satisfaction and dissatisfaction (distinct meaning a correlation significantly less than -1) would allow for the extraction of more information about satisfaction (see Table 2) (Jones and Sasser (1995) Zeithamel, Berry and Parasuraman (1996).

This means that a two-factor Confirmatory Factor Analysis model supporting both satisfaction and dissatisfaction constructs would show a significantly better fit than a one-factor model combining the satisfaction and dissatisfaction items into one scale (Babin and Griffin, 1998)

One focus of Babin and Griffin (1998) was to recommend items from the satisfaction literature that do not contaminate (with cognitive beliefs) the satisfaction construct and reject those that do (see Table 3). A database following these suggestions will be collected to compare the results from the External Environmental Forces (from Achrol, 1988) with Dyadic Expectations employing the Satisfaction / Disconfirmation Paradigm. A two-factor model will be used (satisfaction and dissatisfaction) to gain these improved statistical results mentioned above.

Achrol and Stern (1988) operationalized measures for the various uncertainties that decision makers in organizations face in the uncertain environment. His process was guided by three assumptions all considered relevant to the present research. However the third assumption had to be altered as was done below.

- 1.) The empirical domain for the measures was the output environment of the channel domain. This empirical domain would be the environment in which, the output actor functions, deals with most of his customers and is the location of the majority of his/her competitors,
- 2.) The enactment theory of environments (Weick, 1969) models the environment as a perceptual-cognitive phenomenon and relevant decision makers with this view operate in this environment. This view is in synch with two other views of the environment, the information view (Aldrich, 1979) and the resource-dependence view (Pheiffer and Salancik, 1978),
- 3.) The supplier-retailer level of distribution is defined as the unit of analysis. Retailer here included businesses supplying goods and services to final consumers but also to business users.

This channel level being the unit of analysis dictates the conceptualization and thus operationalization of the subject being studied. It will also be the unit of data collection for this research which differs from Achrol and Stern (1988). In the case of Achrol and Stern (1988) the phenomenon investigated was environmental uncertainty which would be most felt by the actor in the output environment, but here to be investigated in uncertainty concerning the operation of the two sociological mechanisms proposed to be operating in the channel dyad.

All three of the following three tables are taken directly from the following article: Babin, Barry J. and Mitch Griffin (1998), Journal of Business Research, Vol.41, No. 2, Pp 127 – 136)

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Appendix

Table 1: Correlation of Other Constructs with Satisfaction and Dissatisfaction Correlated with:

CONSTRUCT	SATISFACTION	DISSATISFACTION	RELIABILITY
MOOD	.15 (.07)	-.12 (.08)	.83
COGNITIVE	-.57	.58	
DISSONANCE	(.03)	(.03)	.73
FUTURE PATRONAGE	.87	-.79	
INTENTIONS	(.04)	(.05)	.83
EXPECTATIONS	.59 (.06)	-.46 (.07)	.77

DISCONFIRMATION	-.32	.19	
	(.08)	(.09)	.73
ATTITUDE	.77	-.62	
	(.03)	(.04)	.85

Table 2: Satisfaction and Dissatisfaction Item Loading Estimates Model

ITEM	1-FACTOR	2-FACTOR	MODEL	w/4 ERROR TERM	OVERALL MODEL
S1	.88	.90	.90		.89
S2	.86	.86	.86		.87
S3	.84	.86	.86		.86
S4	.87	.88	.87		.85
D1	-.77	.81		.81	.78
D2	-.81	.84		.84	.84
D3	-.73	.75		.75	.76
D4	-.93	.88		.88	.87

Note: The column headed “Error Term” represent the error term between S1 and D5, S2 and D6 S3 and D7 and finally S4 and D8

Table 3: Original Satisfaction / Dissatisfaction Items with Strong Face Validity Drawn from Previous Research

ITEM NAME	ITEM	SCALE TYPE
(abbreviation)		
SI	Which of the following choices best describes the level of satisfaction you experienced from (name of business)	Extreme satisfaction Very much satisfaction Satisfaction Some satisfaction No satisfaction
S2	Use the following percentage scale to indicate your level of satisfaction. Please circle the percentage best describing your level of satisfaction experienced from (name of business)	Not at all Completely satisfied satisfied 0% 10% 90% 100%
S3	I feel satisfied with my experience at (name of business)	5-point Likert Scale Not at Very
S4	Please respond to the following based on how you feel about your overall experience with (name of business) The scale ranges from 1 = “Not at All,” meaning you do b not feel that emotion at all, to 7 = “Very much felt,” meaning you felt that emotion very much: Satisfaction	all..... much 1 2 3 4 5 6 7
D5	D5, D6, D7 and D8 are worded exactly as above except here	
D6	the word , “dissatisfaction,” replaces ,”satisfaction,” in	

- D7** **each item.**
- They also use the same scale**
- D8** **types as above**

Foreign and Domestic Students: Uncertainty Avoidance versus the Stereotype

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Introduction

The number of international students at U.S. colleges and universities rose 4.7% to 723,277 during the 2010-11 academic year, says an annual report by the Institute of International Education. Enrollments have been on the upswing since 2006-07 and grew 32% over the past decade (Marklein, 2011). Multinational corporations will soon be faced with a wealth of talented, educated, multicultural applicants for positions in their firms. This article argues that there may be another excellent reason to hire a US-educated foreign student; they may have a greater tolerance for risk and uncertainty.

The study uses a readily available survey from a licensed Geert Hofstede web site (itapintl.com) and both domestic and foreign student volunteers to test for the work-value homogeneity of students versus their country norm. Culture is defined as the “collective programming of the mind which distinguishes the members of one human group from another”, where it includes the systems of values and these values are among the building blocks of culture (Hofstede, 1980:21). Our research tries to answer the question, “Does study abroad *deprogram* the foreign student?” In a limited sample, we found that foreign students are lower on uncertainty avoidance than their country norms. We also found that the sample of domestic students was higher on uncertainty avoidance than the United States norm.

Review

This section will review the need to study abroad to be qualified to work for businesses today. We also will explore the type of student that goes abroad and discuss Hofstede’s work.

The need to study abroad

There are many sources for describing the need for students to study abroad, but American Scott Freidheim’s remarks to the British Academy International Conference, on March 27, 2012, in London, United Kingdom summed up the case very well (Freidheim, 2012).

From my point of view, I have seen firsthand not only the value but also the prerequisite of having the attributes which are developed and fostered through study abroad—namely: global mindset, collaboration, adaptability, flexibility, and learning and cultural agility. These are of paramount importance to achieving success in the international business arena and are many of the very attributes we look for when hiring talent. My Investcorp experience has made me appreciate even more the value of these attributes.

While there are many educational and recruiting sources that explain the benefits of study abroad, people actually in international business give the best rationale. To give Mr. Freidheim's remarks more weight; he is Chief Executive Officer, Europe for Investcorp International Ltd. and Member, Board of Trustees, Institute of International Education. Before joining Investcorp in 2011, Freidheim was Executive Vice President, Sears Holdings Corporation. He was President of Kenmore, Craftsman & Diehard. Previously, he was an executive at Lehman Brothers.

What type of students decides to study abroad?

Much research has been conducted to determine what factors dominate the decision process a student goes through when considering the pursuit of an education in another country. While early studies (Cumming 1984) examined migrating patterns, later studies (McMahon, 1992) looked at "push" and "pull" models. Push factors are variables of the country left behind, such as less educational opportunity or low quality of institutions. Pull factors are variables of the destination country or institution, such as educational freedom, safety, or reputation and recognition of the degree in the home country.

Mazzarol and Souter (2002) found six factors were ranked higher by international students than local students—"quality and reputation of the institution, the recognition of the institution's qualification in their own country, the international strategic alliances the institutions had, the quality of the institution's staff, its alumni base and its existing international student population" (p. 87). Hazen and Alberts (2006) surveyed international students, their top three answers for choosing to study in the U.S. was because of better educational opportunities, desire to experience a new culture, and improved job opportunities back home.

In 2007, Daily, et al, looked specifically at factors utilized by international students interested in business schools. They hypothesized that AACSB accreditation would be an important factor representing quality of the institution, and found that accreditation was important yet the international students did not necessarily understand the impact of AACSB accreditation. Little to no research has been done on the personality or values of the individual foreign students. This research looks to fill in a gap in the literature to answer the question: Are foreign students different than the general population of their home country? Hofstede (1980) admits to some within country heterogeneity, he just says that country variation is less than variation in other variables such as organizational level, job or gender.

Cultural Values

Geert Hofstede's transcript on work-values across national lines is one of the most referenced works in the field of international business. For example the Social Science Citations Index indicates that Hofstede's work is widely referenced (cited 1800 times through 1999, Hofstede, 2001). Textbook chapters (Deresky, 2011) and consultancy work (itapintl.com) are based on his work. While beyond the scope of this paper, a full review, discussion, and critique can be found in a recent *Journal of International Business Studies* article (Kirkman, Lowe, and Gibson, 2006). Some of the critiques of Hofstede's work are that it doesn't consider individual

differences, that his study doesn't consider subcultures in a nation, and that cultures are assumed to be stable over time (Kirkman, et al, 2006).

Individual Differences: Cultural values can vary within, as well as between, countries (Bochner and Hesketh, 1994; Offerman and Hellman, 1997). Using country scores at the individual level could result in erroneous conclusions based on incorrect assignment of values (Kirkman, et al, 2006).

Subcultures: Using a single country score ignores within-country variance. Researchers have shown significant cultural differences between regions or subcultures of a single country (Hofstede, 1980; Punnett and Withane, 1990; Selmer and DeLeon, 1996). A 1981 book, *The Nine Nations of North America* by Washington Post reporter Joel Garreau, proposed that there were subcultures on the North American continent that ignored national lines. Our domestic sample is from the Southeastern part of the United States (Dixie according to Garreau); while Hofstede's original United States sample was from New York (The Foundry in Garreau's realignment).

Stability: Most cross-cultural researchers assume that cultures are relatively stable systems in equilibrium (Brett and Okumura, 1998). However, Ralston, et al (1999) compared three generations in the PRC and showed that Chinese managers are becoming more individualistic, less collectivistic, and lower in Confucian dynamism. The evolution from Marxist Communists to Market Communists may have affected the stability of work values. As we discuss in a section below, conflicting results listed as from China and Vietnam muddle the research waters. Just as the United States has regional differences, China is a large country with conflicting influences due to individuals with an urban versus a rural background; a north-south difference similar to the US; and especially, the British influence in Hong Kong versus the Russian influence near Beijing.

Vietnam also has some regional differences; most pronounced would be the North-Hanoi centered, Chinese influenced area versus the South-Saigon (Ho Chi Minh City) centered, American influenced area (Quang and Vuong, 2002). In general, the Vietnamese people are hospitable and industrious. In particular, people in the north of the country are characterized as politically sensitive, hard-working and risk avoiders (Ralston et al., 1999). The northern part of Vietnam was strongly influenced by the Chinese culture due to a 1000 year period of dominance of the Chinese feudalism. In addition, Vietnam and China have been part of the socialist camp for many decades. The history and geographic vicinity meant that Vietnamese people share many of the cultural and business practices of their Chinese neighbors. Vietnamese culture displays moderate uncertainty avoidance. People in society feel threatened by ambiguous situations and try to avoid these situations by providing greater job stability, establishing more formal rules, and rejecting deviant ideas and behavior. One of the distinctive features in the Vietnamese society is indirect speech, resulting from the importance of saving face (Quang and Vuong, 2002).

Uncertainty Avoidance

The Uncertainty Avoidance Index (UAI) is one of Hofstede's dimensions that has been measured and tested; but considerably less than the Individualism-Collectivism construct (Kirkman, et al, 2006). The dimension Uncertainty Avoidance has to do with the way that a society deals with the fact that the future can never be known: should we try to control the future or just let it happen? This ambiguity brings with it anxiety, and different cultures have learned to deal with this anxiety in different ways. The extent to which the members of a culture feel threatened by ambiguous or unknown situations and have created beliefs and institutions that try to avoid these is reflected in the UAI score. Low UAI societies maintain a more relaxed attitude in which practice counts more than principles and deviance from the norm is more easily tolerated. In societies exhibiting low UAI, people believe there should be no more rules than are necessary and if they are ambiguous or do not work they should be abandoned or changed. Schedules are flexible, hard work is undertaken when necessary but not for its own sake, precision and punctuality do not come naturally, innovation is not seen as threatening (Hofstede, 1991). Conversely, a high need for certainty, a preference for an environment that is more structure-oriented, and where rules, roles and management practices are clear and unambiguous (itapintl.com).

Low UAI matches international business requirements. An example is innovation championing strategies, as UA increased, preferences for champions to work through norms and rules increased. This means that societies with a high UAI, often have more rules and regulations to reduce the uncertainty in development of new products and need a designated champion (probably selected based on seniority) to cut through the red tape. A low UAI society doesn't have as many restrictions and rules, so anyone could be the champion for a product, even an unofficial champion. Uncertainty acceptance (low UAI) may be linked to more innovative societies. Low UA is related to more delegation and easier approachability. (Shane, 1995; Offerman and Hellmann, 1997).

Methodology

As part of a class assignment in International Management (two semesters), students were asked to complete an online survey and bring the results to the class where work values and Hofstede's results were to be discussed. Students are all juniors and seniors at a public university in the southeastern United States. Individual student's scores were compared to the national average as given in the instrument. When a student's home country was not listed in the ITAP database (itapintl.com), the national average from Hofstede's main web page (geert-hofstede.com) was used. Departure from mean was noted as positive or negative for each student.

We used the ITAP mean for China for both the Chinese and Vietnamese students because that was given in the survey for China and sources said the two cultures were similar (i.e. Quang and Duong, 2002). Also, most of the Vietnamese students in our sample self-selected China as a comparison culture.

In order to determine if there are individual differences that can be identified based on values, or are students studying abroad different than the national norm. We think that the fact they have left the comfort zone of their home country shows a willingness to take risks and try unknown situations, therefore Proposition 1: foreign students studying in the US have lower UAI than their national average.

To identify possible regional differences within a country that might be present and based on political conservatism and a desire to stay near home for college we suggest Proposition 2: Alabama students are higher than the national average on UAI (more risk adverse).

Results

The foreign sample was comprised of students from 8 countries. China and Vietnam were overrepresented with the most foreign students, 9 and 5, respectively. The nine Chinese students had a mean of 59, or 19 points below the Hofstede mean of 78. The five Vietnamese students had an average of 50.8 or 27.2 points below the assigned mean of 78.

As can be seen from the chart below, the foreign students mean was 20.33 points below their country's Hofstede reported average. US students were 8.51 over the US average of 46.

	US	Foreign
Mean	54.41	53.71
Mean of difference	+8.51	-20.33
Number below mean	13 (31.7%)	19 (90.5%)
Number above mean	28 (68.3%)	2 (9.5%)
Total	41	21

Noting the different means above, question one was confirmed. Foreign students have a lower UAI than their country average, which means they are less risk adverse than the population of their country as a whole. Alabama students have a higher UAI and are more risk adverse than the US population as a whole.

Discussion/Summary

Using stereotypes for hiring decisions is not a wise human resource practice in any situation. However, this exploratory research has shown that using Hofstede's generalities is especially unsubstantiated. In general, the idea that foreign students who studied abroad are more comfortable with uncertainty was supported. One can conclude that a student who has studied abroad is more likely to fit with an innovative organizational culture. Testing for UAI may not be acceptable according to the United States legal system, but you could probably use it in other countries.

If your company was contemplating a move into a foreign market, strongly consider a

local that had studied in your home country. For instance, if your company is from the USA and you are interested in investing in Vietnam, it would be wise to include a Vietnamese that had studied in the US on your team. Knowledge of both cultures is only one of the advantages of the Vietnamese new hire. They would likely be more willing to take risks, have built better language skills, be more adaptable and flexible, and, to use Freidheim's term, have cultural agility.

Limitations and drawbacks

The issue with emerging/changing economies, such as Vietnam and China, is that they have undergone and are undergoing drastic changes in their economies and cultures, especially over the past 20 years. Students studying in the United States are only in their 20s. Hofstede's official web site listed scores of 30 on the UAI dimension for both Vietnam and China, thus showing a low preference for avoiding uncertainty (geert-hofstede.com). Two recent dissertations used Hofstede's scales to measure the current level of cultural work values in Vietnam and China. On the UAI, Vietnam scored a 79 (Hoang, 2008) and China scored a 57 (King-Metters, 2006). This shows either a change in the culture over time or some regional difference that hasn't been explained as of yet. However, the large number of Chinese and Vietnamese definitely complicated the results of this study.

Future research needs to be done with a larger, more balanced sample of students from more countries. An unforeseen outcome was the similarity in scores between the average of foreign and domestic students. At 53.71 and 54.41 respectively, the students showed no statistical difference on the UAI measure. Why are Alabama students and foreigners in Alabama so close in the UAI? Is there a self-selection mechanism at work where foreign students chose a site where they might fit into the culture better?

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401(k) Participation and Contribution Levels: The Influence of Stock Market Performance

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Abstract

The failure of 401(k) plans to adequately substitute for the traditional defined benefit plans they replaced is widely known and documented. Companies dropped defined benefit plans with mandatory participation, preset contribution levels, and professional management, and replaced them with 401(k) plans with voluntary participation, no preset contribution levels, and participant management. In addition, while defined benefit plans normally did not allow participants to withdraw funds before retirement, 401(k) plans allow withdrawals and loans for numerous reasons prior to retirement. Consequently, average fund balances are deemed inadequate to fund retirement for most participants. This study seeks to explain why balances are so low by examining the influence of stock market performance on both the number of participants having 401(k) accounts and the contribution amounts to 401(k) accounts. Evidence from this study suggests that stock market performance does influence participation and contribution levels. Stable participation, such as dollar cost averaging, should help increase 401(k) balances, but participants must first become aware of the adverse influence of stock market performance on 401(k) participation and contribution levels.

Introduction

The retirement system in the United States has undergone major changes during the past thirty years. The Employee Retirement Income Security Act of 1974 (ERISA) and the Revenue Act of 1978 protected the tax-deferred status of defined contribution plans, and therefore made such plans widespread in the U.S. according to the Employee Benefit Research Institute (EBRI) (2005). Among these defined contribution plans, the 401(k) has undoubtedly grown to be the most predominant retirement plan that accounts for a large chunk of an ordinary American's retirement assets according to the U.S. Department of Labor (2011). Baby Boomers are the generation that is retiring with 401(k) plans and gradually moving towards retirement, and they face formidable challenges of trying to finance their retirement with 401(k) plans. Whether they can retire with adequate income depends on how actively and effectively they manage their 401(k) plans.

However, studies such as VanDerhei (2010) have shown that even when combined with assumed social security benefits, 401(k) plans are not utilized adequately to provide meaningful retirement incomes. This study is concerned with a possible reason why these plans may not be adequately funded. When employees are given more responsibility to manage their retirement plans, they might not always make the right decisions. One of the possible defects in the design

of the 401(k) is the ability of investors to change their participation status and contribution level. The irrationality of investors' behavior in this regard is a critical aspect that needs to be explored.

The basic assumption of behavioral finance is that investors with imperfect information and insufficient knowledge of investing behave irrationally when making decisions. A founder of quantitative analysis of behavior, Richard Herrnstein (1961), discovered the phenomenon of hyperbolic discounting. This term is used in behavioral finance to describe the human tendency, when faced with uncertainty, to sharply reduce the importance of the future in the decision-making process, according to Allen, Melone, Rosenbloom, and Mahoney (2008). Such a phenomenon is also evident when people make decisions pertaining to 401(k) plans. Historical annual data available on 401(k) plans include the number of active participants and aggregate contributions. The data reveal variability from year to year in the number of participants and aggregate contributions, suggesting that people may change their participation status or contribution level in reaction to economic factors. For example, the data reveal that when stock market indices are high, people tend to make more contributions to their 401(k) plans, and when stock market indices are low, people tend to contribute less.

Unlike other studies, this study tries to examine the behavioral pattern that might have caused underfunding of 401(k) plans by looking at the impact of stock market performance and other economic changes on participation and contribution levels. This paper uses ordinary least square (OLS) regressions to estimate the influence of stock market performance and other economic variables on both participation in 401(k) plans and contributions to 401(k) plans. The regressions use data that are derived from nationwide surveys. In these regressions, the participation rate and contribution per capita are dependent variables in two separate regressions that use identical independent variables. The independent variables are the Dow Jones Industrial Average, the unemployment rate, and the inflation rate. Regression results suggest that both participation rates and contribution levels are significantly impacted by the Dow Jones Industrial Average, but that this impact has decreased over time.

The paper proceeds with a review of the literature on related issues to support the need for this study and its methodology. Then the data used in this study are described, after which regression models and statistical results are presented. The paper ends with an analysis of the results to reach some conclusions and suggestions for further research.

Literature

In VanDerhei (2010), the research director of the Employee Benefit Research Institute (EBRI) reviews EBRI retirement security projection models that estimate the adequacy of the voluntary retirement system depending on a number of variables such as age, gender, income quartile, and savings rate. For example, one model estimated that in order to have a 90 percent chance of covering basic retirement expenses, a single male in the 1961-1965 birth cohort and the lowest income quartile needs to contribute 10 percent of annual compensation to a retirement plan. All the simulations indicate that younger people, and people with higher contribution levels, are more likely to achieve projected retirement income if they keep their contributions at

an appropriate level. Then by comparing the estimated percentage increases in median income replacement rates from 401(k) plans under different scenarios, he argues that automatic escalation of contributions from compensation increases would help most people increase accumulations. VanDerhei's study provides a theoretical basis for this study because it clearly shows that making contributions to a 401(k) plan consistently and continuously is vitally important in determining retirement income. He is also concerned that people's wealth accumulation in 401(k) plans might be negatively affected by the volatility of the stock market. It is possible that the way people participate in and contribute to 401(k) plans is influenced by stock market fluctuations. Therefore, our study focuses on the participation rate and contribution level of 401(k) plans and the influence of stock market performance.

Bajtelsmit, Bernasek and Jianakoplos (1999) find gender differences in decisions involving defined contribution plans. The paper has empirical estimations of relative risk aversion by gender. An equation developed by Friend and Blume (1975) was rewritten to make the model more applicable for assessing the allocation of an individual's risky pension assets. The empirical model uses data collected from 2,277 moderate income households and an additional 866 wealthy households in 48 states. This model differs from others because it measures risk aversion within large portfolios. The proportion of wealth allocated within an individual's defined contribution plan is expressed as a function of wealth, age, spouse age, 12-year education, children, marital status, and other variables. The results indicate that women's degree of relative risk aversion increases as wealth increases whereas men's degree of risk aversion decreases under a similar scenario. Their study is important because a similar methodology is used in this study, and their gender difference findings might provide some explanation for the trends in participation and contribution levels.

Copeland (2010) examines the trends in participation level by workers in employment-based retirement plans. The study summarizes trends in participation levels across worker characteristics such as age, gender, race, education and income. The key finding is that participation levels in both defined benefit plans and defined contribution plans are under pressure in 2009 due to economic forces. The research is based on the U.S. Census Bureau's Survey in 2010, and suggests that other than stock market performance, some major economic factors such as the unemployment rate and the inflation rate might impact participation in and contribution to 401(k) plans. Therefore, unemployment and inflation factors are included in this study.

Data

This study employs data and graphs from the Private Pension Plan Bulletin Historical Tables and Graphs (2011), Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Employee Benefit Research Institute (EBRI), and Yahoo Finance.

The Employee Retirement Income Security Act of 1974 (ERISA) and Internal Revenue Code require most private pension and many private welfare benefit plans to file a Form 5500 Annual Return Report regarding their financial condition, investments, and operations with the

Department of Labor, the Internal Revenue Service, and the Pension Benefit Guaranty Corporation (<http://www.dol.gov/>). The Form 5500 data are summarized by the Employee Benefit Security Administration in a statistical summary within their annual Private Pension Plan Bulletin. Table E20 of the bulletin has data covering participation and contribution levels in 401(k) plans that were used in this study. Annual figures such as the total active participants, contributions, and plan assets are listed from 1984 through 2009. Total amounts of contributions would be meaningless to reflect the real fluctuations in the contribution level since total contribution changes when the number of participants changes. Therefore a ratio value is used as the dependent variable in a regression, which is the contribution per capita, calculated by dividing total contribution in each year by the number of active participants. The same is done with the number of active participants where a participation rate is calculated, which is a ratio of the number of active participants to the total number of people in the labor force.

A stock market index is used to measure stock market performance. Only one index should be used as an independent variable because different indexes are highly correlated. Historical data show that throughout the years of data most of the 401(k) plan assets have been allocated to equity funds, as shown in Figure 1. Since equity funds dominate the average plan assets in 401(k) plans, they should help determine which stock market index is more relevant to this study. An OLS regression analysis testing whether the S&P 500 or the DJIA is the best stock market performance measure for this study shows that average plan assets are more affected by changes in the DJIA than the S&P 500. Therefore the DJIA is chosen to be the independent variable that measures stock market performance.

The unemployment rate is assumed to be a major economic factor that influences participation and contribution levels. This influence comes from the possibility that people might save more when they fear becoming unemployed. The participation rate is expressed as a ratio of the number of active participants to the total number of people in the labor force whereas the unemployment rate is a ratio of the number of unemployed to the total number of people in the labor force. The numerators would not correspond exactly although the denominators are the same, so using the unemployment rate as a control variable does not create a tautology.

The inflation rate is another independent variable used to reflect changes in the price index. It is possible that when prices are high, people do not contribute as much to their 401(k) plans because they need more money to live. Therefore the inflation rate should be inversely related to both the 401(k) participation rate and the 401(k) contribution level.

Descriptive statistics for all the variables in this study appear in Table 1. The average participation rate is 23.4 percent but it ranges from 6.6 to 39.1 percent. The average contribution per capita is 3,483, but it ranges from a low of \$2,165 to a maximum of \$4,765. The average DJIA is 6,474. Variable medians are all very close to their means, suggesting normality in the distributions. In the 26-year period, the DJIA was at its lowest level of 1,176 in 1984, which is the same year when both participation rate and contribution per capita were at the minimum levels. The DJIA peaked in 2007, and the contribution per capita reached its maximum level in

2008. One year later, the participation rate was also at its highest level. The descriptive statistics reveal that the regressions are likely to produce useful results.

Results

The impact of stock market performance and the economy on 401(k) participation

To examine the impact of stock market performance on 401(k) participation, a model is formed using the participation rate as the dependent variable, the DJIA as the independent test variable, and the unemployment rate and the inflation rate as control variables. The data are available for review in the Appendix 1. The model is as follows:

$$\text{Participation rate} = \beta_0 + \beta_1 \text{DJIA} + \beta_2 \text{Unemployment Rate} + \beta_3 \text{Inflation Rate} + \varepsilon \quad (1)$$

The coefficients are estimated by running a multiple regression analysis. The adjusted R² for the model is 0.93, which means that 93 percent of the variation in the dependent variable is explained by the variation in the independent variables. The ANOVA test of the coefficients examines whether all the coefficients equal zero. The null hypothesis is that all coefficients equal zero. The alternative hypothesis is that at least one coefficient does not equal zero. The rejection region for the null hypothesis (assuming $\alpha=.05$) is $F > F_{\alpha, k, n-k-1} = F_{.05, 3, 22} = 3.05$. The test yielded a much higher f-value of 104, which is at the one percent significance level and is a strong evidence to reject the null hypothesis in favor of the alternative hypothesis. Therefore, the regression result supports the model.

Table 2 shows the regression output from the model. The DJIA test variable has the highest t-statistic and the lowest p-value, which indicates that the DJIA is the most significant variable among all independent variables and that the DJIA has the strongest relationship with the 401(k) participation rate. The coefficient for the DJIA is 0.003, which means holding everything else constant a one unit increase (decrease) in the DJIA would result in an increase (decrease) in participation rate of 0.003 percent. The unemployment rate is also highly significant at the one percent level, but it has a lower t-statistic than the DJIA. A high p-value of 0.46 and a low t-statistic of 0.29 indicate a very insignificant correlation between the inflation rate and the 401(k) participation rate.

The Impact of stock market performance and the economy on 401(k) contributions

To examine the impact of stock market performance and the economy on 401(k) contributions, a model similar to the first model is used, but the participation rate is replaced with the contribution per capita as the dependent variable. The DJIA, unemployment rate and the inflation rate are still the independent variables. The complete data set for this model is also available in Appendix 1. The model is as follows:

$$\text{Contribution per capita} = \beta_0 + \beta_1 \text{DJIA} + \beta_2 \text{Unemployment Rate} + \beta_3 \text{Inflation Rate} + \varepsilon \quad (2)$$

The adjusted R² for the model is 0.94, which means that 94 percent of the variation in the contribution per capita variable is explained by the variation in the independent variables. The ANOVA test of the coefficients also showed overwhelming evidence to support the validity of this regression model. Therefore a high degree of confidence exists in the regression results.

Table 3 is the regression output from the 401(k) contribution rate model. The results are highly consistent with the results from the first regression model. The DJIA variable is significant at the one percent level. The coefficient for the DJIA is 0.22, which means holding everything else constant a one unit increase (decrease) in the DJIA would result in an increase (decrease) in contribution per capita of \$0.22. The unemployment rate variable is significant at the three percent level. The inflation rate is insignificant.

Trends in 401(k) plan participation and contribution levels

The behavioral pattern of people participating in 401(k) plans might not be static. Changes in the U.S. retirement laws pertaining to 401(k) features and the composition of the labor force motivate a look into the trends in both participation and contribution levels of 401(k) plans. One of the changes is the passage of the Pension Protection Act Of 2006 (PPA), which added the automatic enrollment and automatic escalation features into 401(k) plans. According to VanDerhei (2010), these features have been successful in raising participation and contribution levels of 401(k) plans.

Another change is the increasing number of women in the labor force along with their increasing participation levels in retirement plans. The number of women as a percentage of the total labor force was calculated using the data from A Databook (2010) published by the U.S. Bureau of Labor Statistics. The calculations show that over the time period of the data women have become a greater percentage of the labor force and since 1995 have continuously accounted for more than 46 percent of the total labor force as shown in Appendix 2. Furthermore, women's participation level in retirement plans has increased substantially in the last two decades. The Copeland (2010) study provides data that include estimated percentages of male and female workers who participated in employment-based retirement plans during the years 1987 through 2009, and shown in Figure 2. From Figure 2, it is evident that the gap between the female participation rate and the male participation rate has narrowed from 10.3 percent to 0.4 percent. According to Bajtelsmit (1999), women generally are more risk averse than men. The higher risk aversion of women could result in steadier 401(k) participation and contribution levels, since women became a higher percentage of the work force. As a result, the overall sensitivity of participation and contribution levels to stock market performance may have declined over time.

The decline is supported by results from the regression models. By dividing the data into two subsets of time series data (1984-1996 and 1997-2009), the same regression models can be applied to the two subsets of data. Although of course the number of observations drops, the results are still significant for the output from using both subsets of data.

First, the participation rate data is divided into two subsets of data and separate regressions then employ the data from each subset. The adjusted R² for the first data subset is 0.92, and it decreases to 0.77 for the second data subset as shown in Table 4. The ANOVA tests yield significant evidence that both models are valid. Table 4 compares coefficients, t-statistics and p-values for the two sub-models. For the first 13 years, the unemployment rate and the inflation rate are insignificant with over 0.5 p-values and small t-statistics. The DJIA is the only significant variable and has a coefficient of 0.0036. For the latter 13 years, coefficients and t-statistics for the unemployment rate and the inflation rate increase substantially. The two control variables are more significant. Compared to the first 13 years, the DJIA variable is less significant. The coefficient drops from 0.0036 to 0.0027, and the t-statistic drops from 8.5 to 4.32. The results indicate that participation level has recently become less sensitive to stock market performance.

The same methodology is applied to the contribution per capita model. The results are shown in Table 5. By comparing the results, the same trends are found as in the participation rate analysis. For the latter time period, the adjusted R² drops slightly from 0.78 to 0.76. The significance of the DJIA variable in the contribution per capita model drops less substantially than it does in the participation rate model; however, coefficient of the DJIA variable falls from 0.26 to 0.17. This also suggests that 401(k) contribution level is less sensitive to stock market performance in the more recent time period. The unemployment rate and the inflation rate control variables become more significant for the latter 13 years. The changes in the significance of the control variables in the contribution per capita model are more evident than those in the participation rate model. The coefficients and t-statistics both increase for the unemployment rate and the inflation rate variables. The unemployment rate variable changes from insignificant to highly significant at the one percent level, and the inflation rate variable becomes significant at the 9 percent level.

Conclusion

Based on theoretically sound models and significant regression results, it appears that stock market performance has a profound adverse influence on both 401(k) participation and contribution levels. Participation in 401(k) plans has been very sensitive to fluctuations in the stock market. During the past 26 years, when the stock market was high, more people participated in 401(k) plans and invested more money in the stock market, and when it started to plunge, some people either contributed less or even moved out of their plans. Regarding contribution levels, it appears that people tend to contribute more when the stock market is high and less when the stock market is low. Although data have not been found that track selling transactions in the stock market involving 401(k) plan assets, the tendency of people to change their contribution level according to the performance of the stock market is very clear. Such a behavioral pattern is hurting accumulations in 401(k) plans and could be a major reason why many people are likely to have inadequate incomes when they retire. VanDerhei (2010) advocates that 401(k) sponsors offer employees an automatic escalation feature. His simulation models show that the automatic escalation feature could increase overall 401(k) accumulations dramatically. The automatic escalation feature is essentially a form of stable participation similar

to dollar cost averaging, by having the participant contribute a steady percentage of salary to a 401(k) plan, which would increase contributions as the employee's salary increases. Since it is unlikely that all 401(k) sponsors will introduce the automatic escalation feature, employees should consider practicing dollar cost averaging, which should achieve greater accumulations even without automatic escalation.

This study also found that the influence of stock market performance on 401(k) participation rates and contribution levels has declined somewhat over time. It appears that both participation rate and contribution per capita have become a little less sensitive to the volatility of the stock market. The drop in the t-statistic and coefficient for the DJIA variable in the participation rate model for the more recent time period implies that people have come to realize the importance of 401(k) plans, and that they are less likely to withdraw from participation in their 401(k) plans when the stock market falls. A similar trend in the contribution level is less dramatic, which implies that even though more people might realize the importance of their 401(k) plan, most of them are still not practicing dollar cost averaging. Meanwhile, both the unemployment rate and the inflation rate have become more relevant in estimating 401(k) participation and contribution levels. This suggests that in recent years people are more likely to let their sense of job security and the cost of living impact their 401(k) plan. As the unemployment rate goes up, more people start to participate and contribute more money to their 401(k) plans, possibly because they are afraid of losing their jobs and having inadequate savings. In addition, in more recent years, people contribute more when inflation goes up, by possibly realizing the need for more money in retirement.

Insufficient data prevent a study with a wider scope and scale. The associated costs of collecting large survey data are high. The nationwide surveys conducted by the U.S. Department of Labor are the readily available sources of data, but they only cover a short time period of 26 years. Furthermore, the 401(k) plan is still evolving. Some major laws such as the Pension Protection Act of 2006 were passed not long ago. It is difficult to study the impact of this law on 401(k) plans within a short time period, but as time goes on, the data should become available to measure its impact. Additional research could also be done if data become available on 401(k) selling transactions to determine influences that motivate selling.

The contribution of this study is to bring attention to the possibility that 401(k) balances will increase when participation and contribution levels become less influenced by stock market performance. However, 401(k) balances will probably remain low while 401(k) participation and contribution levels remain influenced by stock market performance.

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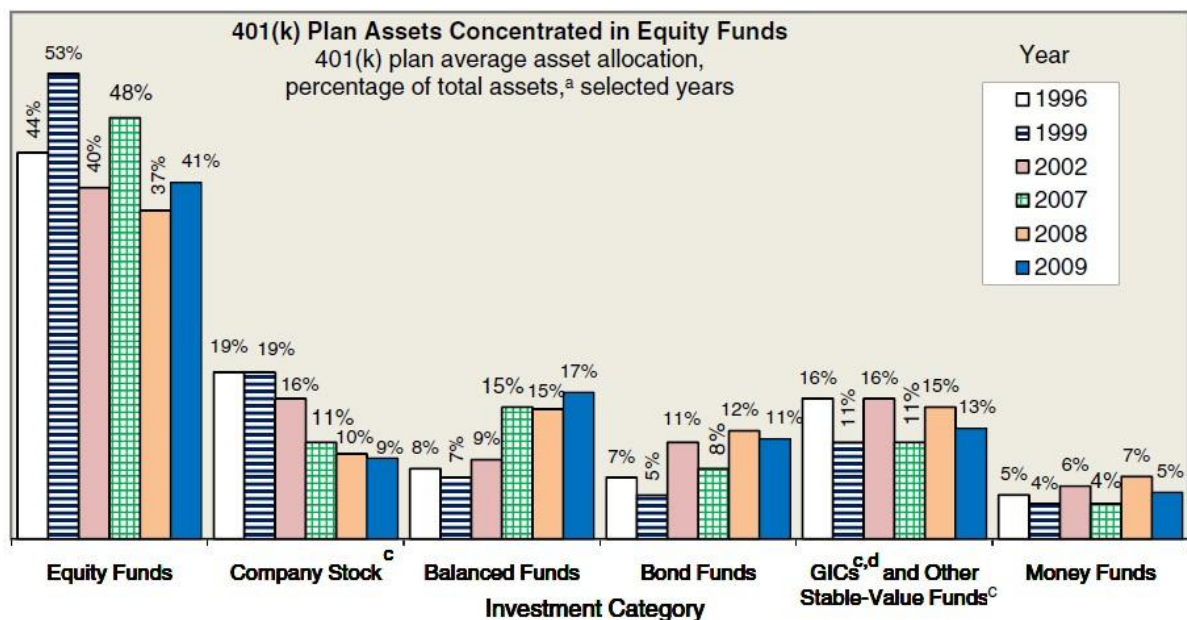
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Tables

Figure 1: 401(k) Plan Assets Concentrated in Equity Funds



Source: Tabulations from EBRI Participant-Directed Plan Data Collection Project

Figure 2: Percentage of Wage and Salary Workers Ages 21-64 Who Participated in an Employment-Based Retirement Plan, by Gender, 1987-2009

Percentage of Wage and Salary Workers Ages 21-64 Who Participated in an Employment-Based Retirement Plan, by Gender, 1987-2009

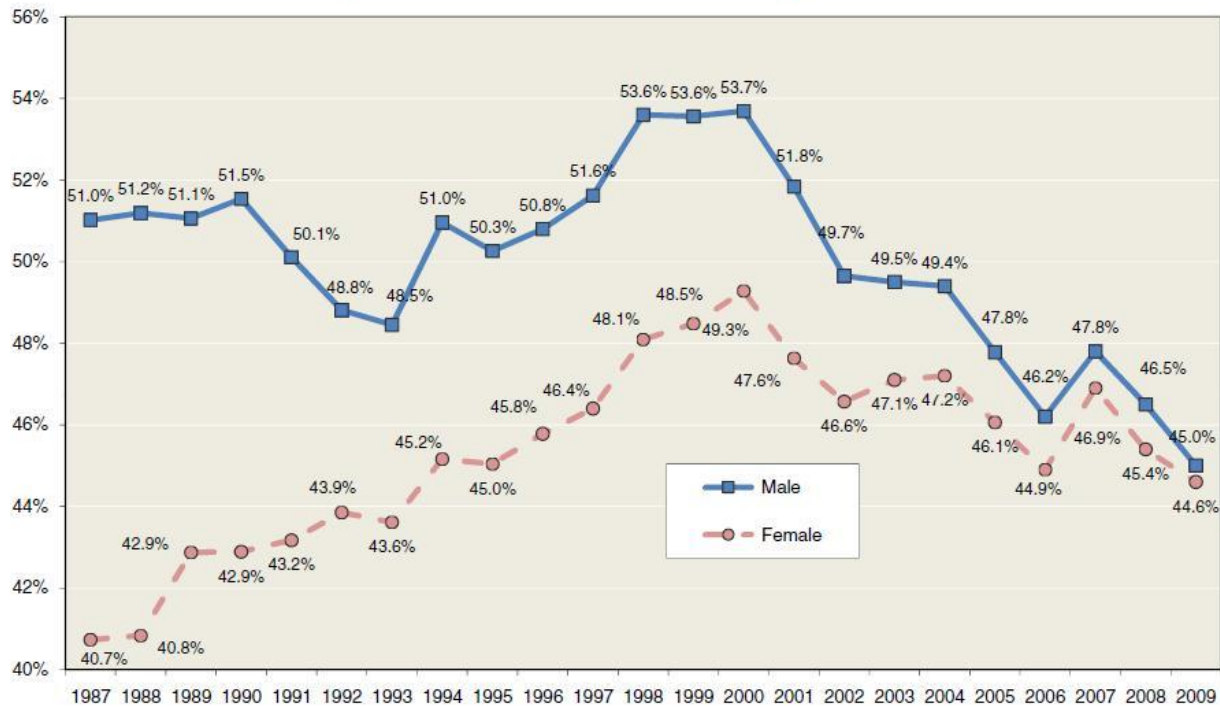


Table 1: Descriptive Statistics

	Participation Rate	Contribution Per Capita	DJIA	Unemployment Rate	Inflation Rate
Mean	23.4	3,483	6,474	5.8	3.01
Standard Error	2.01	160	765	0.2	0.23
Median	23.78	3451	6554	5.6	2.95
Mode	#N/A	#N/A	#N/A	7.5	#N/A
Standard Deviation	10.27	817	3903	1.2	1.16
Sample Variance	105.52	667246	15234768	1.5	1.35
Kurtosis	-1.18	-1	-2	1.0	1.84
Skewness	0.10	-0.04	0.07	0.9	-0.55
Range	32.5	2,600	11,959	5.3	5.73
Minimum	6.63	2,165	1,176	4.0	-0.34

Maximum	39.1	4,765	13,134	9.3	5.39
Sum	607.04	90555	168327	151.7	78.13
Count	26	26	26	26.0	26.00

Sources:

1. Data, Table & Calculators by Subject, U.S. Department of Labor, U.S. Bureau of Labor Statistics, <http://www.bls.gov/data/>.
2. U.S. Department of Labor, Employee Benefits Security Administration. (2011). *Private Pension Plan Bulletin Historical Tables and Graphs*.
3. Yahoo Finance, Historical Prices, <http://finance.yahoo.com/>.

Table 2: Regression Output for the 401(k) Participation Rate Model

	Adjusted R Square: 0.93		
	Observations: 26		
	Coefficients	t Stat	P-value
Intercept	-7.35	-1.20	0.243579819
DJIA	0.003	13.25	5.77076E-12
Unemployment Rate	1.95	3.05	0.005871541
Inflation Rate	0.29	0.46	0.652063675

Participation rate = $-7.35 + 0.003 \text{ DJIA} + 1.95 \text{ Unemployment Rate} + 0.29 \text{ Inflation Rate}$

Table 3: Regression Output for the Contribution per Capita Model:

	Adjusted R Square: 0.94		
	Observations: 26		
	Coefficients	t Stat	P-value
Intercept	1444.65	3.20	0.004
DJIA	0.22	13.78	0.000
Unemployment Rate	110.12	2.34	0.029
Inflation Rate	-6.07	-0.13	0.897

Contribution Per Capita = $1444.65 + 0.22 \text{ DJIA} + 110.12 \text{ Unemployment Rate} - 6.07 \text{ Inflation Rate}$

Table 4: Regression Output for the Two Participation Rate Sub-Models

	1984-1996			1997-2009		
	Adjusted R Square: 0.92			Adjusted R Square: 0.77		
	Observations: 13			Observations: 13		
	Coefficients	t Stat	P-value	Coefficients	t Stat	P-value
Intercept	4.92	0.81	0.439702	-15.21	-2.06	0.0691908
DJIA	0.0036	8.50	1.354E-05	0.0027	4.32	0.0019204
Unemployment Rate	-0.29	-0.45	0.6622105	3.30	4.24	0.0021645
Inflation Rate	0.30	0.58	0.5734049	1.22	1.09	0.3044277

Participation rate (1984-1996) = 4.92 + 0.0036 DJIA – 0.29 Unemployment Rate
+ 0.3 Inflation Rate

Participation rate (1996-2009) = -15.21 + 0.0027 DJIA + 3.3 Unemployment Rate
+ 1.22 Inflation Rate

Table 5: Regression Output for the Two Contribution per Capita Sub-Models

	1984-1996			1997-2009		
	Adjusted R Square: 0.78			Adjusted R Square: 0.76		
	Observations: 13			Observations: 13		
	Coefficients	t Stat	P-value	Coefficients	t Stat	P-value
Intercept	2092.83	2.60	0.0288336	971.54	1.88	0.0922919
DJIA	0.26	4.69	0.0011325	0.17	4.03	0.0029725
Unemployment Rate	24.64	0.29	0.7755984	208.72	3.84	0.0039553
Inflation Rate	-66.95	-0.99	0.3470997	148.71	1.90	0.0898765

Contribution per Capita (1984-1996) = 2092.83 + 0.26 DJIA – 24.64 Unemployment Rate
– 66.95 Inflation Rate

Contribution per Capita (1996-2009) = 971.54 + 0.17 DJIA + 208.72 Unemployment Rate
+ 148.71 Inflation Rate

Appendix

Appendix 1: Variables in the Regression Analyses

Year	Participation Rate ⁽²⁾	Contribution Per Capita ⁽²⁾	DJIA ⁽³⁾	Unemployment Rate ⁽¹⁾	Inflation Rate ⁽¹⁾
1984	6.63	2165	1176	7.5	4.3
1985	8.93	2358	1329	7.2	3.55
1986	9.78	2535	1794	7.0	1.91
1987	10.92	2535	2262	6.2	3.66
1988	12.45	2601	2060	5.5	4.08
1989	13.94	2668	2505	5.3	4.83
1990	15.47	2517	2670	5.6	5.39
1991	15.07	2707	2928	6.9	4.25
1992	17.4	2886	3282	7.5	3.03
1993	15.49	3464	3520	6.9	2.96
1994	19.12	3028	3778	6.1	2.61
1995	20.98	3149	4487	5.6	2.81
1996	22.88	3393	5722	5.4	2.93
1997	24.68	3439	7386	4.9	2.34
1998	26.76	3655	8569	4.5	1.55
1999	27.71	3935	10441	4.2	2.19
2000	27.95	4247	10705	4.0	3.38
2001	29.19	4156	10145	4.7	2.83
2002	29.79	4211	9174	5.8	1.59
2003	29.78	4281	8964	6.0	2.27
2004	30.13	4591	10299	5.5	2.68
2005	36.58	4092	10535	5.1	3.39
2006	38.53	4306	11386	4.6	3.24
2007	38.9	4587	13134	4.6	2.85
2008	38.87	4765	11234	5.8	3.85
2009	39.11	4286	8843	9.3	-0.34

Sources:

1. Data, Table & Calculators by Subject, U.S. Department of Labor, U.S. Bureau of Labor Statistics, <http://www.bls.gov/data/>.
2. U.S. Department of Labor, Employee Benefits Security Administration. (2011). *Private Pension Plan Bulletin Historical Tables and Graphs*.
3. Yahoo Finance, Historical Prices, <http://finance.yahoo.com/>.

Appendix 2: Women in the Labor Force

Year	Women in Labor Force (Thousands)	Men in Labor Force (Thousands)	Total Labor Force (Thousands)	Women to Labor Force Ratio
1984	49709	63835	113544	43.78%
1985	51050	64411	115461	44.21%
1986	52413	65422	117834	44.48%
1987	53658	66207	119865	44.77%
1988	54742	66927	121669	44.99%
1989	56030	67840	123869	45.23%
1990	56829	90377	125840	38.61%
1991	57178	69168	126346	45.26%
1992	58141	69964	128105	45.39%
1993	58795	70404	129200	45.51%
1994	60239	94355	131056	38.97%
1995	60944	71360	132304	46.06%
1996	61857	72087	133943	46.18%
1997	63036	73261	136297	46.25%
1998	63714	73959	137673	46.28%
1999	64855	74512	139368	46.54%
2000	66303	76280	142583	46.50%
2001	66848	76886	143734	46.51%
2002	67363	77500	144863	46.50%
2003	68272	78238	146510	46.60%
2004	68421	78980	147401	46.42%
2005	69288	80033	149320	46.40%
2006	70173	81255	151428	46.34%
2007	70988	82136	153124	46.36%
2008	71767	82520	154287	46.52%
2009	72019	82123	154142	46.72%

Source: Women in the Labor Force: A Databook, 2010, US Bureau of Labor Statistics, www.bls.org

Cloud Computing: The Perfect Storm

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Abstract

Cloud computing is the confluence of technology that allows firms to focus on the core competencies of their business rather than using scarce company resources for building information technology (IT) platforms and infrastructures. This concept is centered on the delivery of computer applications over the Internet along with providing services associated with hardware and IT infrastructure (Armbrust et al., 2010).

Introduction

Cloud computing is the confluence of technology that allows firms to focus on the core competencies of their business rather than using scarce company resources for building information technology (IT) platforms and infrastructures. This concept is centered on the delivery of computer applications over the Internet along with providing services associated with hardware and IT infrastructure (Armbrust et al., 2010). Cloud computing provides integrated, on-demand access in a shared environment with rapid scalability. As with the well-known storm created by three weather systems off the Eastern Seaboard in 1991, the collective energy created by the combination of emerging technologies has created a revolutionary means by which to provide information technology to a variety of business enterprises.

Similar to a utility grid for facilitating and advancing enterprise computing requirements, cloud computing is considered to be one of the hottest technological developments in recent years (Bragonier, 2011). Cloud service providers have been compared to utility companies whereby users “turn[ing] on the lights” (Bragonier, 2011, p. 29) via the Internet to access computing services. Users may plug into various services within the computing grid and determine how best to accommodate and pay for fluctuating demand related to computer services. This “perfect storm” of emerging technologies includes the same elements as the development of electricity: efficient mass production, reliability and infrastructure (Bragonier, 2011).

This unprecedented increase in functionality is primarily driven by virtualization and reliable Internet availability. Further, economies of scale allow for delivery of these services to companies in a manner that is typically cheaper and more efficient than traditional on-site computing. See Figure 1 Cloud vs. Traditional Computing for a detailed comparison. These advances in technology have allowed cloud computing to create a remarkable shift in global computing strategies.

Figure 1: Cloud vs. Traditional Computing

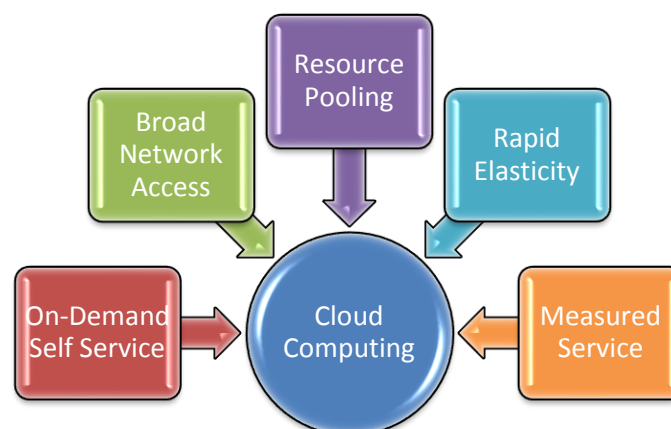
Cloud vs. Traditional Computing	
A Point-by-Point Comparison	
Traditional	Cloud
Up-front investment in hardware and software	Small investment – pay as you go
Requires time to deploy	Deploy on demand
Requires networking expertise	Little networking required
Must be configured for remote access	Remote access built in
Company IT resources responsible for maintenance	Cloud provider handles maintenance
Company handles security, backups, disaster recovery	Cloud provider handles security, backups, disaster recover

(“A walk in the clouds,” 2011)

Characteristics

Cloud computing consists of a number of inter-related technologies used to present a new computing paradigm – one in which computing resources are presented in a utility model for use as needed by individuals and corporate consumers. Although individual definitions may vary, the essential characteristics as defined by the National Institute of Standards and Technology (Grance & Mell, 2011) are shown in Figure 2 Cloud Computing Characteristics and detailed below.

Figure 2: Cloud Computing Characteristics



(Grance & Mell, 2011)

On-demand Self-service

This characteristic is represented by the ability of the cloud service consumer to independently provision computing resources such as processing time or storage from a service provider on an as-needed basis without requiring human interaction.

Broad Network Access

Access to the self-provisioned resources is provided via a communications network. For some deployment models of cloud computing, this refers to the public Internet. For other models, access is provided by a private network made available by an organization for its users. A key component of this characteristic is that access must have a broad, reliable reach for members of an organization. Users must be able to make use of the resources from a number of locations, usually from multiple platforms, in order to facilitate the benefits of cloud computing.

Resource Pooling

The cloud infrastructure provides resources to the consumer from a shared pool that is available to all users of the provider's service. The resources made available include processing capabilities, communications bandwidth, and both long and short-term storage capacity using a multi-tenancy model. This model can include both physical and virtual elements and is usually presented as a geographically independent entity.

Rapid Elasticity

This characteristic represents the ability of the end user to quickly add and release computing resources as needed to meet the demand required for a given period. These resources are often presented to the user as an unlimited quantity and can be requisitioned at any time, often automatically.

Measured Service

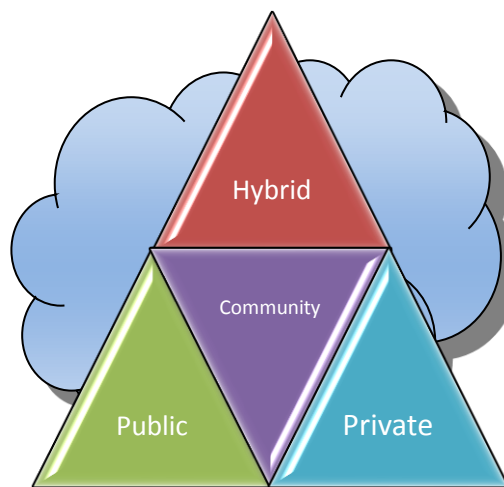
Cloud computing environments automatically control and optimize resource usage through the implementation of a metering system that abstracts the underlying technology (e.g., processing, storage, or bandwidth) and presents the service as quantifiable, discreet service units. In this way, resource usage is transparent for both the provider and the consumer and can be monitored for control and billing purposes. Another aspect of this characteristic is that it allows cloud computing to be a usage-priced system. Capital costs are borne by the provider, meaning that the user is only billed for resources consumed for a given period of time with no up-front costs. Additional subscription plans are also sometimes a feature of a cloud provider's offerings (Hilton, 2009).

Hilton (2009) also defines two additional characteristics of cloud computing: Service-Level Assured and Virtualized. The Service-Level Assured (SLA) component requires the service provider to offer guaranteed levels of performance for metrics such as server uptime, network responsiveness, security controls, etc. Associated with these guarantees are monetary penalties for the provider if they are not met. The virtualized characteristic is a key enabling technology that underpins all of cloud computing.

Deployment Models

There are four common models of deploying cloud computing as described by Rimal, Jukan, Katsaros, and Goeleven (2010) shown in Figure 3 Models of Cloud Computing. Clouds are classified as public clouds, private clouds, hybrid clouds, and community clouds.

Figure 3: Models of Cloud Computing



(Rimal, Jukan, Katsaros, & Goeleven, 2010)

Public Cloud

The public cloud is owned by a third party and provides off-site computing resources for a fee. This deployment model consists of computing services and infrastructure that is owned by a provider and offered as a service to customers. All equipment is owned and managed by the provider and the services are purchased by the consumer – it is entirely external to an organization. This model is the cloud computing architecture in the mainstream sense. It is typically accessed via the public Internet using some type of client application such as a web browser.

With this deployment model, all capital expenditures, maintenance, and management costs are borne by the provider, making this a good solution for organizations who want to be able to budget and pay known costs for computing resources on an as-needed basis without

incurring long-term overhead. Using cost schedules from a provider, the customer can select whatever resources are required and allocate budget expenses in a fixed, known quantity. This model is often one of the simplest methods of building and maintaining a computing infrastructure which does not require a large, professional on-site staff for the organization.

Another benefit of the public cloud is the wide-ranging access available to users. Because access is via the Internet, users can make use of computing resources on a global basis. This model is a good solution for companies and organizations with a widely dispersed workforce or customer base or when data and applications are easily distributed.

This model typically offers the least flexibility and control for an organization as all management functionality and ownership belongs with the service provider. Organizations may find this model makes them subject to terms and limitations as spelled out in a legal contract which may facilitate the need for service-level agreements (SLAs) in order to guarantee promised performance. However, because access is via a public network that is beyond the provider's control or responsibility, even with SLAs, insufficient performance standards may not trigger compensation from the vendor.

Another risk with this cloud model is vendor lock-in. Once the provider has a contract with a customer, they may take steps which make it difficult, if not impossible, to reclaim or move any services to another vendor, even after all contractual obligations have been met. The provider has no incentive to ease an organization's transition to another company and may erect obstacles to such actions. In other cases, while the original provider may not actively hinder these actions, the resources that have been used may simply not be compatible with another vendor, leaving an organization stranded and having to rely on the original provider.

Additionally, security issues can arise for data which is subject to strict control such as client medical or financial information. When control is out of an organization's hands, security cannot be guaranteed except through agreements and legal contracts. However, injuries incurred due to a service provider's negligence or actions that can be remedied through the legal system may not be enough to compensate a company sufficiently to repair its reputation or provide sufficient legal protection from actions undertaken by injured clients, potentially putting the entire organization at risk.

For these reasons, enterprises tend not to move their business-critical applications and data to public cloud providers, preferring instead to outsource less critical functions.

Private Cloud

The user owns the cloud in this scenario. The company owns on-site computing resources that can be accessed by identified remote users. With this model, an enterprise chooses to implement the technologies of cloud computing and to operate it in-house on a corporately owned infrastructure, providing the services to requesting business units.

This is the most expensive method of implementing cloud computing as it requires not only the hardware and technologies but also a trained staff. The capital expenses as well as maintenance and management expenses are borne by the organization instead of an external service provider.

However, this is a more flexible implementation in that it gives the business the most options in terms of how the cloud infrastructure is built and managed as well as how services are offered and billed back to the end users. Greater security and control also exist under this configuration, meaning that businesses can gain much of the benefits of cloud computing while retaining in-house business-critical applications and resources at the expense of maintaining the overhead and infrastructure.

Performance is often better with private clouds, again because most of the infrastructure is maintained in-house and access tends to be provided to a much larger degree over a private, corporate network. As a result, a greater level of monitoring, management, and control is available at all times and an organization is not dependent on the external priorities of the service provider.

The private cloud is a good solution for organizations with the internal resources to implement it and make efficient use of the benefits it provides. However, because of the costs involved, this can be a high hurdle to meet, which leads to the next model.

Hybrid Cloud

With this arrangement, a user pays a third-party provider a fee for off-site computer resources and also incurs the costs associated with on-site resources. The hybrid cloud attempts to take advantage of the best facets of both the public and private cloud models. This model typically involves a portion of a private cloud along with one or more external providers for the public cloud. This model seeks to provide the cost, scalability, and access benefits for both external and internal users while also enabling those benefits internally for mission-critical applications.

This model offers a number of options and alternatives to a strictly public or private implementation. However, there can be a great deal of complexity added through the need to interact with multiple providers as well as maintain the internal cloud. Additionally, this complexity can cause issues when trying to integrate applications and data across and between different and sometimes incompatible cloud platforms.

These issues can restrict applications to certain regions or user groups as well as prevent the easy exchange of information across infrastructures. For these reasons, additional expenses will be incurred when attempting to implement this model as well as some additional overhead required strictly for management of the cloud intersections.

Because of these concerns, companies have to be very careful with their application and data architectural models when moving in this direction so as not to cripple themselves or exceed expected costs. This option can provide multiple benefits but can also be the most complicated solution to implement.

Community Cloud

The fourth and final deployment model is known as the community cloud. This model is not as common as the others and is generally not found in discussions of this topic. With a community cloud, several organizations use the resources provided by the cloud but the infrastructure is owned and supported by a specific community that has shared concerns such as policies, compliance requirements, mission, etc.

For organizations with these shared interests, this model can make good sense from an economic as well as a technical perspective. The users can enjoy the benefits of the cloud while knowing that shared concerns are being appropriately tended to by the community provider.

Service Models

There are numerous cloud computing service providers, as illustrated in Figure 4 Cloud Computing Providers, which offer a wide array of products. Companies interested in transitioning to cloud computing have the ability to choose large providers, such as Amazon, or smaller providers such as Virtual Ark. Some cloud providers provide only software as a service (SaaS), while others provide platform as a service (PaaS), and infrastructure as a service (IaaS) (Durkee, 2010). Each cloud provider may offer more than one type of cloud depending on the needs of the end user.

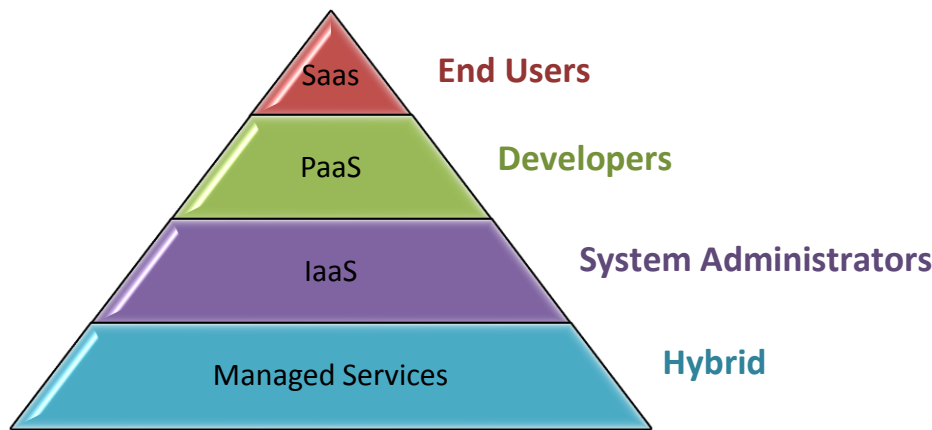
Figure 4: Cloud Computing Providers



Service Types

In addition to selecting a deployment model for their cloud computing solutions, organizations must also consider the service type as illustrated in Figure 5 Service Types. This involves deciding what services are made available to the end users via the cloud and how those services are provided. There are some common characteristics among service types. Users rent or lease cloud capabilities rather than buying them. Next, providers are responsible for maintaining systems and hardware in accordance with specified terms. Lastly, all service models have rapid elasticity which allows for quick response to variable computing needs. Four types of cloud services are available for consideration by organizations (Understanding cloud service, 2010).

Figure 5: Service Types

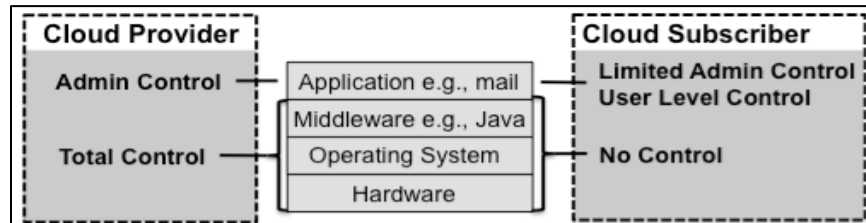


(Who else wants to understand, 2011)

Software as a service (SaaS).

SaaS providers supply use of software at the user's remote site. Some services are provided free while others are pay-for-use. In this scenario, users have no control over the software and the provider determines how the software is managed. See Figure 6 SaaS Characteristics. Under the SaaS model, applications are provided to the consumer organization via an online service. The consumer does not have to install or maintain the application – that falls under the responsibilities of the service provider. This type of service model is typically provided on a subscription basis with charges based on usage.

Figure 6: SaaS Characteristics



(Singh, 2011)

This model can result in considerable savings through the elimination of the supporting infrastructure components but it is also the least flexible model. The provider exercises final authority over the application which can result in the consumer not having as many options available as with an in-house solution (Singh, 2011). There are potential security issues that need to be considered by an organization before choosing this model due to the fact that the data, as well as the application, are stored on equipment that is not owned by the company. And finally, this service model poses some access risks due to the fact that any impairment in connectivity can render an application unavailable for a period of time. Companies need to consider these risks and prepare for them prior to implementation of a SaaS model.

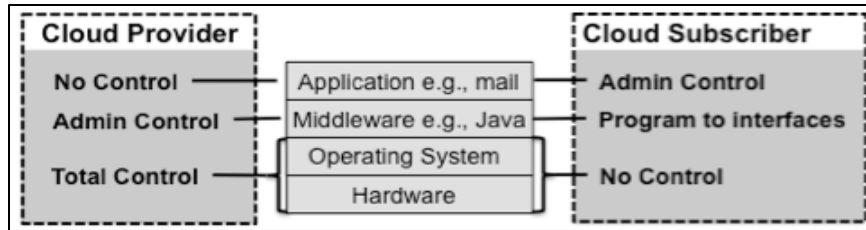
SaaS is the most mature service type and represents the largest portion of cloud computing (McAfee, 2011). This model allows a company to focus on its business operations rather than spending resources on maintaining the application and infrastructure and it is a good selection for productivity and collaboration applications (Singh, 2011).

Platform as a service (PaaS)

PaaS provides a predetermined platform that can include servers, operating systems, applications, databases, etc. (Bragonier, 2011). The service is either free or pay-for-use and the platform offering is controlled and managed by the provider. The PaaS model is typically most useful for software vendors and developers as well as IT service providers who need a platform for developing, testing, and deploying applications (Singh, 2011). With this model, a company purchases the resources necessary for development work while the cloud vendor maintains responsibility for the cloud infrastructure as well as the underlying components such as the servers, operating systems, and network. See Figure 7 PaaS Characteristics.

The consumer under this model relies on the provisioning of development tools and environments by the cloud vendor in order to perform their work. This arrangement allows companies to accomplish their tasks more efficiently without requiring an investment in the infrastructure components and it allows the consumer to acquire capacity on demand as the work progresses through various phases.

Figure 7: PaaS Characteristics



(Singh, 2011)

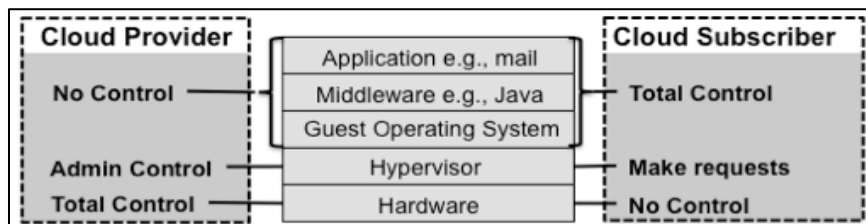
However, because the consumer is limited by the vendor on the choice of tools, organizations can find their options restricted, thereby limiting their flexibility and impacting their ability to deliver a finished product. Also, as with the prior service model, accessibility is a concern due to the fact that any interruptions could adversely affect any project work and deadlines.

PaaS represents the smallest portion of the market. This model has a more limited scope and audience and typically is not found in standard business user environments.

Infrastructure as a service (IaaS)

With IaaS, the user controls all facets of the infrastructure located in the cloud and pays the provider for use. While the previous two models provide resources to the cloud consumer organization, but sometimes with significant restrictions, this model provides much greater flexibility at the cost of additional expenses and complexity. See Figure 8 IaaS Characteristics.

Figure 8: IaaS Characteristics



(Singh, 2011)

In addition to allowing the purchase of processing, storage, and network bandwidth resources, the consumer under this model has a much greater degree of freedom in selecting, installing, and maintaining more foundational elements such as the operating systems, support tools, and applications as well as some limited control of select network components (Service models, n.d., Cloud infrastructure as a service section) such as firewalls and intrusion systems. The underlying cloud infrastructure, however, remains the complete responsibility of the service provider.

This model is a good solution for organizations seeking to acquire fundamental computing resources and efficiently deliver applications to their users without requiring a large, up-front capital investment. It allows a company to focus on the requirements of providing those applications along with the flexibility to tailor the environment to suit the organization to a much greater degree while still freeing the company from the complexities of managing the underlying infrastructure.

Even while maintaining this greater control, this model exhibits several of the common cloud computing characteristics which allows a company to quickly add or remove computing resources on an as-needed basis in order to meet demand which improves the IT organization's ability to meet business needs in a more timely manner.

Managed services.

The provider manages both hardware and software related to the user's infrastructure. Virtual server configuration, operating systems, application installation, disaster recovery and other services can be included in this type of arrangement (Bragonier, 2011).

Virtualization

The ability to disassociate computers, applications, and data from the underlying physical hardware and to geographically abstract the location of those components is the realization of the concept of virtualization. The technologies that form the foundations of virtualization have been around for several decades in larger, more expensive computing systems. It was not until commodity computing equipment evolved to the point that it could support these technologies that virtualization and cloud computing became an economically viable option for the majority of organizations.

Historical Considerations

In the early days of computing, the equipment was very expensive and availability was limited. Access to the equipment also required the user to be physically present in the general location of the computer. However, the slowest component in any computing system tends to be the human element. Even the slowest computers of the early era could perform calculations at a rate impossible for human beings.

Additionally, another slow component has typically been the electro-mechanical components of storage – disk drives. Compared to the processing speeds and ability to move data through a computing system, the time required moving the mechanical arm of a disk drive and to magnetize/de-magnetize the surface of a disk platter is slower by several orders of magnitude.

This means that throughout the history of computing, a large percentage of time was spent with the system waiting for a person to perform some action or for the storage systems to

write or retrieve data. Because of these restrictions, virtualization technologies were developed to allow a single, physical computing system to be logically divided in such a way as to appear to users as multiple, independent computers. In this way, these logical or virtual servers could then be used to meet the needs of multiple users performing a number of different functions. Because of this, while the system was waiting for one user to perform an action or for some requested data to be delivered from the storage system, the computer could allocate that idle time to other users via different virtual servers. This allowed these early, very expensive systems to be shared by larger groups of individuals and departments which lowered the costs for everyone involved.

As computers began to arrive in corporate data centers and eventually onto peoples' desks, this same process was repeated. Expensive computing equipment would sit idle much of the time while the users were busy doing something else or simply making decisions and entering data. It was an inefficient solution but the technology had not evolved on these lower-end commodity components to support virtualization.

For that to happen, computer processors available to the general public had to improve in performance to a degree substantial enough that spare resources could effectively be divided and allocated to multiple uses. Also, storage in the form of internal memory and long-term disk drives had to expand in capacity and responsiveness to a point where they became viable for supporting multiple groups.

As hardware technologies continued to evolve through-out the 1990s, software companies began to export these virtualization technologies to the lower-end commodity hardware while at the same time the Internet and private data networks were growing at exponential rates. In the early years of computing, network bandwidth was an expensive and very valuable commodity but the explosion of these networks forced communications companies to expand to such a degree that wide-spread, high-performance access was becoming available en-mass to both commercial and residential customers.

By the early part of this decade, all of these technologies had converged to give birth to cloud computing. Hardware had evolved to the point where it could support virtualization; access via high-speed communication networks was widely available; and the software needed to enable this new computing paradigm was quickly evolving to meet customer demands.

How Virtualization Facilitates Cloud Computing

Virtualization addresses a number of characteristics required to make cloud computing a reality. First, it allows for geographic abstraction. This means that a user is no longer restricted to a certain distance from the computing resources he or she is using. With appropriate access speeds and available resources, this means that a computer can be located in the room next door or a continent away. The location, as far as the user is concerned, is irrelevant. Once those resources are commoditized as billable service units, computing access becomes a utility that can be bought and consumed as needed rather than a long-term capital investment.

Because of this utility-like nature of cloud computing, the on-demand characteristic allows consumers to acquire computing resources in a timely manner in volumes appropriate to those needs. Because of the underlying virtualization of the resources, new equipment can be provisioned in minutes as opposed to the typical days/weeks/months acquisition cycle of the physical counterparts. In fact, duplicate resources can be created much like a stamp from common templates, allowing users to develop standard components that are quickly deployable and re-usable.

In cases where the demand for computing resources outgrows the initial estimates, it is possible with this technology to easily add additional performance in almost any of the facets of a computing system such as more processing power, greater internal memory, and increased long-term storage. Users can access resources to perform tasks and meet needs themselves without having to directly involve expensive, professional staff members. This is the expression of the self-service characteristic.

The rapid elasticity characteristic is seen in the ability to increase resources on demand but also in the fact that once those resources are no longer needed, they are just as easily deleted. Once access to data is no longer needed or a virtual server has performed its functions, the user can simply delete them. Again, the process can occur in minutes with no capital outlay and no concerns regarding disposal of assets. Computing resources can contract as quickly and easily as they expand, making usage more efficient and economical.

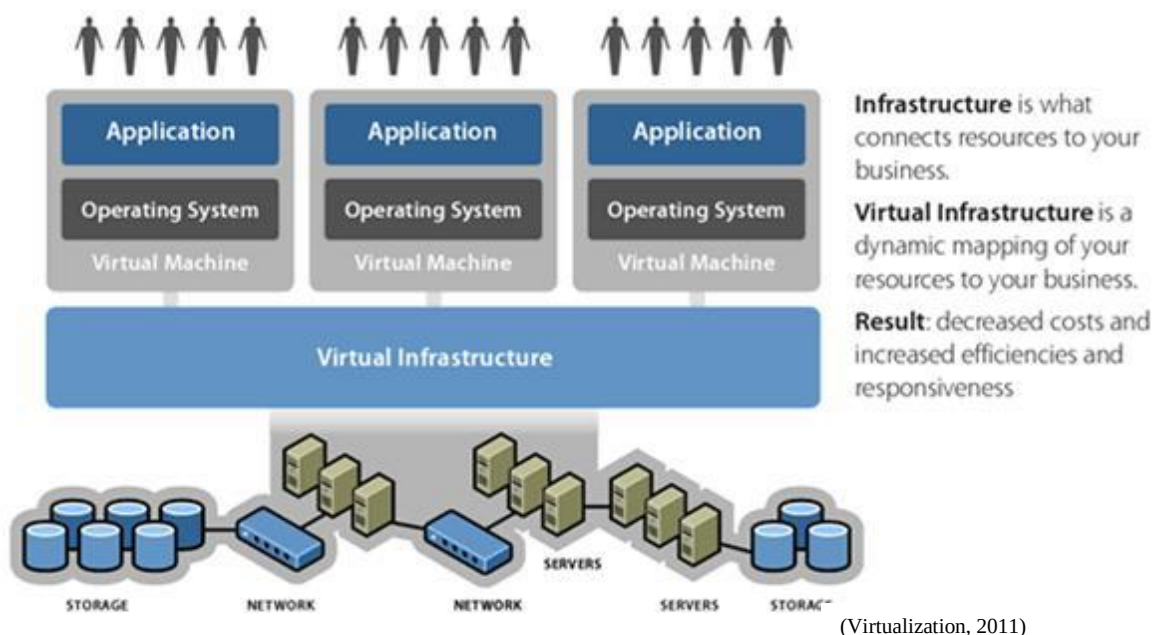
Because resources can grow and shrink with this elasticity, a large fixed base of assets is no longer required for individual functions as long as the aggregate demand required by all customers is available at a given point in time. The resource pooling characteristic enabled by the virtualization technologies provides this elasticity. As long as spare memory, storage, or processing capabilities are available at the time they are needed those resources can be removed from the pool and allocated to a paying customer. This allows large, expensive, IT staffs to focus their efforts on functions such as enabling additional capabilities for the user base and managing these larger but more efficient infrastructure components while business users focus on the revenue-generating functions of the organization.

When referring to broad network access, there are really two aspects of this characteristic that need to be discussed. As already mentioned, access needs to be readily available at the appropriate performance levels in order to achieve acceptable response times. Cloud computing, as a concept, falls apart if these virtualized components are not available to users in a manner that enables them to accomplish their tasks in a time-appropriate manner.

Also important is the ubiquitous nature of that access. High-performance computing with extensive virtual resources is not economically feasible if users are required to travel to remote locations to access those resources. They must be brought to the user instead. This is where the second aspect of broad network access comes into play.

Instead of stranding users at assigned locations, cloud computing allows resources to be delivered across private corporate networks. However, the real power comes in using publicly accessible communications facilities to access those resources. This virtual infrastructure, as illustrated in Figure 9, makes it possible to provide computing services to almost anyone, almost anywhere in the world. This is another aspect of the geographical abstraction previously mentioned. Computing functions can be acquired, used, and disposed of – all from the convenience of almost any location – a corporate building, a public library, the local coffee shop, an individual’s own home. Having applications and data available in remote locations increases the efficiency, collaboration, and performance of end users.

Figure 9: Virtual Infrastructure



And finally, it is the measured service characteristic of cloud computing that adds the degree of economic viability for both the consumer and the provider significant enough to enable this as a service offering. By virtualizing and commoditizing computing resources and then abstracting those resources into logical entities that can be tracked, cloud providers are able to place discreet monetary values on those resources which allow them to develop financial models of costs and returns. Once this occurs, these companies can develop service offerings and pricing models for consumers.

From the consumer’s viewpoint, this is a valuable benefit. Dollar allocations can be made for these resources which allow the consumer to accurately track and focus costs

associated with specific projects and functions and improve the budgeting process while not incurring any additional long-term capital expenditures.

Training Considerations

It is easy to see that companies can mix and match the types of services clouds provide with the type of cloud that best addresses the needs of the company. With such a myriad of choices, the issue of training is one that deserves careful consideration by senior management when making the decision to transition to cloud computing. The type of training required depends on the type of cloud and depth of use senior management determines is correct for the company. Training may be as simple as providing a few hours of hands-on training for operators to learn how to access the web portal to the cloud ranging up to training the IT department to build and host dedicated private clouds.

SaaS Training

SaaS is perhaps the simplest cloud format and the easiest to learn. SaaS clouds generally consist of a single cloud portal that the user accesses through a simple user id and password format. Users then perform all their work through this single portal. Cloud providers of SaaS have gone to great expense and effort to have the cloud version of software mimic the on-device version of the same software. In other words, a version of Microsoft Word that is accessed in the cloud would look and behave identically to a version of Microsoft Word that is resident on the user's computer. The success of providers of SaaS services depends on whether or not the end users distinguish little difference in speed or operation of cloud based software versus computer installed software. As expected, the training required to train operators to use SaaS software is minimal. If the provider goes to the length of having the portal logon screen look similar to other logon screens the user is already familiar with, then the user does not discern a difference. The user needs to be aware of security issues involved in logging onto the cloud and they should utilize the same business computer protocol that they use for the local computer.

PaaS and IaaS Training

PaaS, where operating platforms are cloud based and IaaS, where entire IT systems are in the cloud, are much more involved from a training perspective. PaaS and IaaS involve not only the day to day users of software but also developers and advanced IT personnel. Developer and IT training may involve days of training and thousands of dollars (Implementing a private cloud solution: Hands-on, 2011). Training would consist of accessing the cloud, leveraging open source and proprietary cloud products and integration of your cloud products with other cloud users and platforms. As expected, much of the training revolves around security. It is imperative that senior management understand how the firm is protected from external and internal threats. Particular attention should be given to internal threats, those threats that involve users who have clearance to be in the cloud and may have access to your programs and documents.

Training Options

There are a variety of training options available for cloud users. Large cloud providers, such as Amazon Web Services, offer online E-training, on-site training and off-site training. Smaller cloud providers may only offer online education. The type of instruction depends on the level of training required. Positions that merely involve the use of email and office documents may only require 1-2 hours of online or hands-on training. An example of this would be Microsoft's Lync program which allows online document sharing, real-time instant messaging and online collaboration abilities. This program comes with an online user's guide and a short 15 minute training video that users access via the cloud. In the training, users learn the basics of the system.

More advanced training may be offered by the cloud provider or by an outside computer training company. Learning Tree, a computer technology training company that offers training to corporations and government, is not affiliated with one single particular cloud provider, but offers a variety of 4-day cloud training programs that are available throughout the world. The training is tailored to a particular product such as setting up and maintaining a private cloud or accessing and using the Amazon Web Services cloud. They also offer customized on-site training programs to companies which allow hands-on training on specific company products (Implementing a private cloud solution: Hands-on, 2011).

Training Costs

As shown in these examples, the learning curve for acquiring basic cloud skills is very short. However, in-depth platform and systems training is much more costly and requires more time and commitment. The total cost of training, including learning curves, should be evaluated against the cost of training required to maintain on-site services and required upgrades. The cloud offers a clear advantage by offering specific "one time" systems upgrades that often occur in the background. Upgrades occur on a timely basis with little to no interruption to services. Systems installed onsite often require multiple upgrades across every device resulting in software availability downtime. In addition, training required must be transmitted to every user, while training required in the cloud is presented one time and the user can access the training at his or her convenience.

Training accessed through the cloud saves companies money. Attendees are not required to leave the comfort of their workplace. Companies save money on travel expenses, lodging, and meals. Cloud training can also be done in real time with face-to-face instructors utilizing web conferencing software, instant messaging, and video chat. While training is a consideration for companies contemplating the move to the cloud, training expenses and time required to learn cloud based software, platforms, and infrastructure are often much lower.

Return on Investment

According to a 2010 IBM survey, only 11% of a company's IT budget is spent on developing new applications. In the survey, 80% of CEOs believed their company's market environments would be more complex in the coming years and less than 50% felt they were

equipped to deal with the changes. IT infrastructure at many companies is often lacking in its ability to offer flexibility to changing market demands (McAfee, 2011). Cloud computing may be the solution executives need in order to gain competitive advantage in the coming years.

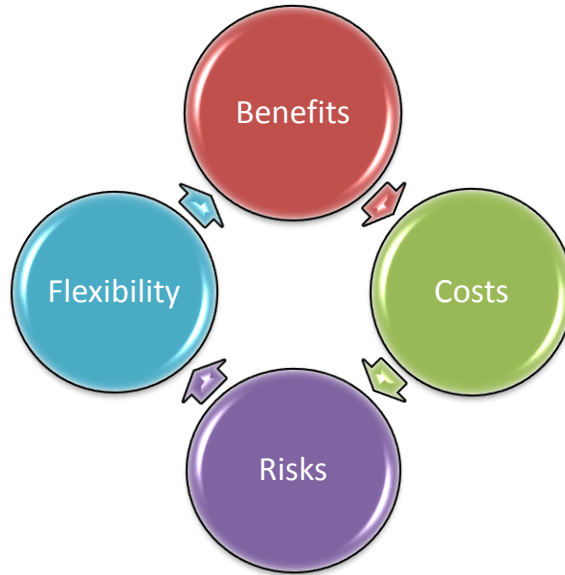
Before making the decision to move to the cloud, companies need to take into account the composition, age, and effectiveness of their existing systems. They must then decide what systems need to be in the cloud, and who will manage the project (Tinhnam, 2011). The costs of going to the cloud should be evaluated against existing costs. This is a challenge because there are unseen costs along with unseen benefits of cloud computing.

Perhaps the biggest struggle facing senior management and finance when considering the move to the cloud is how to calculate the return on investment (ROI). Intuitively, it seems logical that accessing software and platforms for a nominal fee is much cheaper than purchasing the software and maintaining the upgrades for each device in the company. However, quantifying those savings is not straight forward. There are conflicting studies and reports as to the true costs of cloud computing. A 2009 McKinsey case study concluded that putting a client's entire data center into the cloud would increase costs by 144%. Microsoft, a cloud provider, states that it would be cheaper for companies to put all their servers in the cloud (McAfee, 2011). A 2010 *Wall Street Journal* article states that many small companies are recognizing huge cost savings by utilizing the cloud (Maltby, 2010).

Traditional ROI Factors

Four factors that should be considered by companies in determining the ROI of cloud computing are illustrated in Figure 10 ROI Factors.

Figure 10: ROI Factors



(Herbert, 2011)

1. **Benefits.** How will your company benefit from cloud applications?
 2. **Costs.** How will your company pay for cloud applications?
 3. **Risks.** How do uncertainties change the impact of cloud applications on your business?
 4. **Flexibility.** How does this investment create future options for your organization?
- (Herbert, 2011)

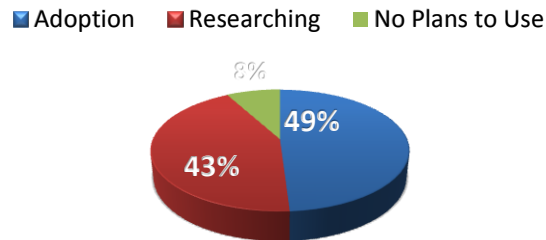
Benefits from cloud utilization including simpler upgrades, low upfront costs, and better utilization of resources should be evaluated when calculating ROI. Cloud computing allows companies to dynamically expand or reduce usage depending on current needs. Costs include the monthly subscription, vendor management, and ongoing training. Risks include security risks, government regulation of data stored in the cloud, ownership of data, and denial of service attacks. Flexibility benefits include seamless upgrades and the pay-as-you-go feature which enables companies to only pay for the resources they need. The Forrester Research Group attempts to quantify ROI based on traditional ROI standards by looking at increased total revenues minus costs of maintaining cloud applications in the areas of customer service, enterprise resource planning, and business productivity applications (Herbert, 2011).

Alternate ROI Factors

The Open Group, a global consortium consisting of IT vendors, customers, consultants, and researchers, has taken a different approach to calculating the ROI of cloud computing (Harding, 2011). In a survey conducted on their group members, they found that 49% of the group was adopting cloud computing, 43% were researching it, and 8% were not planning on using cloud computing. Only one in seven were using public clouds. The majority were using

private clouds due to the greater sense of security and ownership over public clouds. Of the 49% of the group who stated they were adopting cloud computing; only about one in three said they had a way to measure ROI. See Figure 11 Cloud Computing Acceptance.

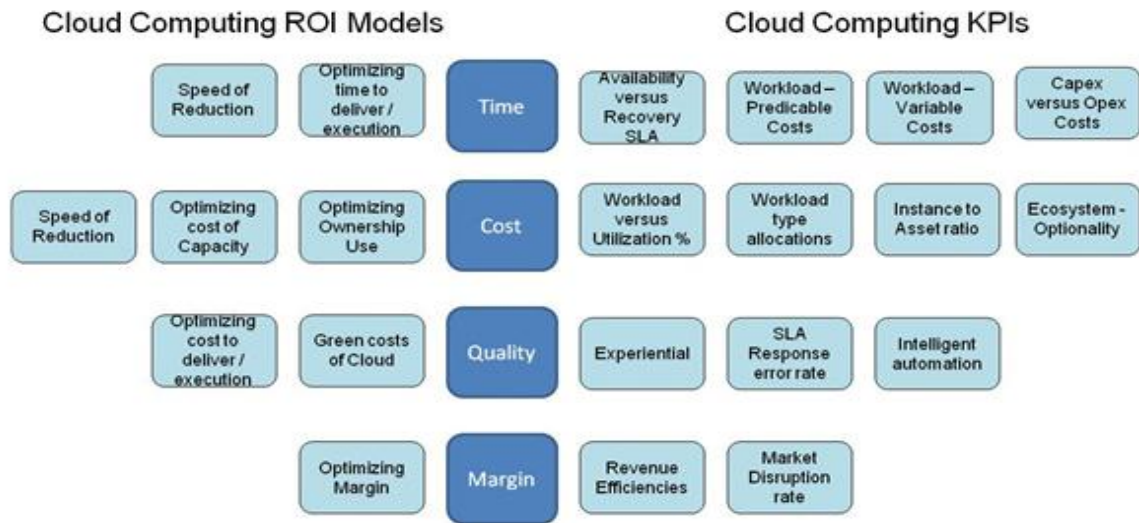
Figure 11: Cloud Computing Acceptance



(Harding, 2011)

This led The Open Group to attempt to develop a model based on four key performance indicators (KPIs): time, cost, quality, and margin. Within each of the indicators, ROI ratios and KPIs were developed to gauge performance. See Figure 12 Cloud Computing ROI and KPI.

Figure 12: Cloud Computing ROI and KPI



(Skilton, 2010)

The conclusion of The Open Group ROI experiment is that working with complex, multiple ratios is time consuming and may not clearly define the ROI of transitioning to cloud computing. The better approach, in their opinion, is that the decision to transition to cloud computing should have nothing to do with ROI, but with the conversion of upfront capital costs currently required to upgrade IT infrastructure to smaller monthly costs incurred when using cloud based systems. Additional benefits include the alignment of IT with strategic business goals (Harding, 2011) .

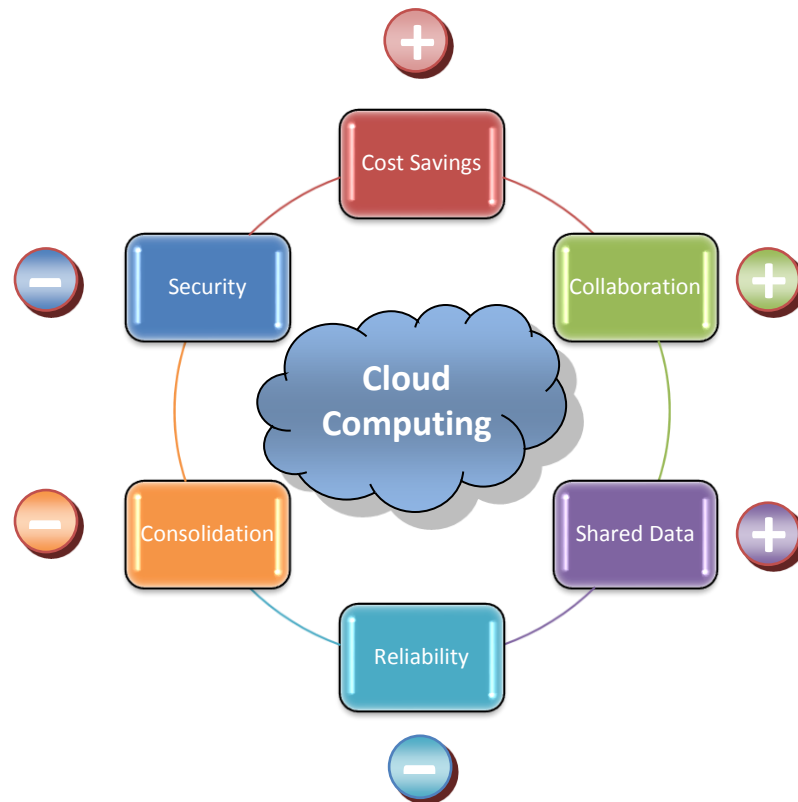
Competition is currently driving down the price of cloud computing. However, it will never be free. Competition determines cloud pricing strategies (Durkee, 2010). There are definite upfront and ongoing costs associated with cloud computing. When it comes to cloud computing, companies may have to forgo traditional ROI calculations and instead indirectly quantify the benefits of increased system uptime, lower capital costs, increased flexibility of resources, and alignment of IT with strategic corporate goals.

Advantages and Disadvantages

When making the decision as to whether or not to adopt some form of cloud computing, companies must determine if advantages outweigh disadvantages. All business decisions involve a degree of risk. The decision to switch from a conventional IT structure to an ethereal IT structure requires senior management to devote more effort to consideration of the potential risks and returns associated with cloud computing. As is often the case, there may be both unanticipated and unintended outcomes. It is impossible to ascertain all advantages and

disadvantages, but there are some general areas that must be carefully reviewed. See Figure 13 Cloud Computing Advantages and Disadvantages.

Figure 13: Cloud Computing Advantages and Disadvantages



(McAfee, 2011)

Advantages of Cloud Computing

The primary advantages claimed by companies who have chosen cloud computing include cost savings, easily accessible/shared data, and enhanced collaboration/communication methods. Understanding of these topics helps companies determine how cloud computing can help create these positive outcomes.

Cost Savings

Cost savings can be realized in a variety of ways. Greg Olsen, CTO of Coghead, states, “What inspired me about the cloud is that I could start a company and not buy any servers, phones, or software licenses” (Creeger, 2009, p.53). Taking advantage of cloud services can dramatically reduce the level of capital expenditures required by a startup company or even a

well-established company. Managers can also add immediate savings to the bottom line as a result of reduced IT workforce. Wegner Vogels, CTO of Amazon, remarks, “Using the cloud, you no longer have to deal with things on a physical level. You no longer need to have people running around the data center replacing disks all day” (Creeger, 2009, p.53). Geir Ramleth, CIO of Bechtel, supports the notion that workforce can be reduced and staff productivity can be increased using cloud computing by saying, “You can get your smartest guys working on what matters most rather than having them work on mundane stuff. That’s a huge benefit” (Creeger, 2009, p.53). As IT staff decreases, hardware/licensing costs diminish, and staff members become more productive it is easy to understand why “total cost of ownership can be significantly reduced when using the cloud” (Creeger, 2009, p.54). With the expansion and increased adoption of cloud computing models, the cost of services is far less than that of the traditional in-house computing model. The need for IT managers to build their own infrastructure is eliminated with cloud computing. Companies are able to pay as they go for these services, giving managers better control and allowing for more accurate cost forecasting as it relates to IT (Harris, 2011).

Collaboration

Once data sharing has been established, managers can then realize advantages in easier, broader, and more creative collaboration between users within the organization. Online applications and productivity software allow individuals to work together in ways they never could before (McAfee, 2011). There are no borders or international boundaries when it comes to effective online collaboration (Vinter, 2009). Not only is collaboration in the cloud becoming essential in the business world in terms of email, calendars and instant messaging, it is also more reliable as most providers now guarantee up to 99.9% uptime. Cost effective collaboration coupled with high reliability is a strong combination that is hard for managers to ignore when considering cloud computing.

Shared Data

For managers, shared and accessible data produce huge benefits in terms of making faster and more precise management decisions. You can essentially access any information from any device, anywhere in the world (Harris, 2011). Sales trends, customer demand and pricing adjustments can be made quickly due to the immediate availability of data needed to make these types of decisions. What once took weeks or months, now takes only minutes or days to extract and share.

Disadvantages of Cloud Computing

Managers must explore both the positives and negatives related to the Internet-facing design of cloud computing. Potential pitfalls include difficulties related to consolidation, security breaches and the worst scenario of all, total system failure. Investigating these potential

risks will help managers to weigh the pros and cons of cloud computing before making a final decision related to implementation.

Consolidation

Faced with the decision of whether or not to move their infrastructure to the cloud, many firms have decided not to do so because they simply do not want to make the tough consolidation and standardization decisions that must be made during implementation (McAfee, 2011). Due to a large mix of operating systems, hardware, and applications that have been implemented over time within a company's IT infrastructure, managers often face resistance from users when asked to give up older legacy systems.

Security

Just like on-premises systems, cloud systems are also vulnerable to hackers and outside Internet attacks. The security of data is of utmost importance to most organizations. In the past, data thieves actually needed your physical hardware in order to steal your information. Now, with large amounts of confidential data being stored in the cloud, hackers only need a password. Protection from the outside is not the only concern. Twenty-first century firms need the ability to both grow and downsize on a rapid basis, which means they also need the ability to provide as well as quickly remove access to data if necessary. The administrative capabilities of on-premise systems have traditionally been better at handling these types of security measures. Cloud vendors are slowly catching up and trying to provide these same capabilities to help protect data both internally and externally. Andrew McAfee remarks, "Cloud vendors who are interested in the large enterprise market are working to incorporate administrative functionality into their products; many have already done so" (2011, p. 132).

System Failure

One of the biggest concerns related to cloud computing is total system failure. When placing most or all core business processes in the cloud, companies are taking a risk by hoping that the 99.9% guaranteed uptime is indeed true. The question is what happens when they are faced with that 00.1% downtime, all Internet connections are lost and there is no access to their provider's data center? This was most recently the case with Amazon in early 2011 when their web services were unavailable for three days. This was a major blow to companies without a reliable backup system in place (McAfee, 2011). Outages, such as Amazon's, could result in huge amounts of lost revenue, lost customers, and maybe even result in the complete collapse of an organization. Investing in redundant backup systems and planning for such outages should be a top priority for firms looking to transition to cloud computing.

Conclusion

Cloud computing offers the potential to gain competitive advantage while also exposing the firm to potential risks. Companies of all sizes have the opportunity to change the way they

conduct business by utilizing cloud computing. Before embarking on a journey to the clouds, there are ten things senior management should know about cloud computing.

1. *The characteristics of cloud computing.* The cloud offers software, platforms, unlimited capacity for storage, and scalability or elasticity. This, in turn, should drive productivity improvements, lower labor costs, and lower upfront capital costs.
2. *Cloud computing should be part of the corporate strategy.* Cloud computing allows companies to utilize their IT department for long-term strategic projects. In this environment, companies have fewer concerns related to legacy systems and system outages.
3. *Cloud computing allows for channeling IT spend through operational budgets.* Cloud computing eliminates the need for large initial capital budgets and other upfront IT costs. IT has the potential to become a revenue producing department by leveraging the power of the cloud to improve sales and customer service.
4. *Business agility and IT flexibility.* The cloud enables organizations to use only the level of service they need for current business conditions. The level of cloud computing resources required matches the level of company business. When business is in a growth cycle, cloud computing resources required automatically increase. When business is in a declining cycle, cloud resources automatically scale back to match the demand.
5. *Business users are put into the IT driver's seat.* Companies will be able to select services required and not have to rely on the IT department for maintenance of existing systems. Companies can divert funds used for maintenance to strategic projects.
6. *The market is not yet mature.* Cloud providers are still entering the market. Companies should choose cloud providers carefully. It is important to choose one with longevity and a clear track record of performance.
7. *Uptime.* Many cloud providers currently provide less uptime guarantees than is required by many business applications. For example, Amazon's cloud-based Simple Storage Service only promises a 99.9% uptime. By comparison, Google's Gmail, which is another cloud-based service, was available 99.984% of the time in 2010, which means the system was available for all but seven minutes each month.
8. *Integration with the cloud.* According to Forrester Research, integration is one of the top concerns people have about cloud computing. The cause of the concern is that in order to use cloud computing, all of the spaghetti of legacy systems must be untangled and simplified. It forces companies to consolidate programs.
9. *Considerable security and audit challenges.* Cloud computing raises several security concerns. The heart of the matter is that companies want to know how their data is protected from internal and external threats. They are also interested in how available the data is to auditors. To mitigate concerns, many companies choose to transition to the cloud slowly, often beginning with low security risk programs and software.
10. *Cloud computing puts privacy compliance at risk.* Cloud computing utilizes servers that may be located anywhere in the world. Information is often stored on more than one server in different locations. Medical records are just one example of sensitive information whose storage is subjected to governmental regulations. The archiving of financial information regarding taxes is another area of concern. Many governments require financial information be maintained in the country where it was produced. Documents stored off-site in the cloud

may not reside in the producing country, and companies may not be able to prove in which country the documents actually reside (10 things a CEO should know, n.d.).

There are many other aspects of cloud computing that should be considered. The ones presented here are not a definitive list, but are merely a starting point. Cloud computing offers a company the opportunity to fundamentally change the way they approach business. As with any new technology, senior management should carefully weigh the benefits and features of cloud computing before committing to change.

As cloud computing matures, innovation resulting from this technological perfect storm will transform how business enterprises of all sizes use the cloud to gain competitive advantage. With a broad value proposition, this new computing service delivery model will be a permanent game-changer as it provides companies with the opportunity for unprecedented agility in a dynamic business environment.

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Sustaining Lean Tool Initiatives with A3 Management Techniques

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Abstract

Business operations in the 21st century are markedly different from business operations at any other time in history. Strategically, companies must consider international markets, foreign competition, and elimination of internal waste to improve productivity, revenues, customer satisfaction, and net profits. Companies must become leaner in their approach to business in order to be competitive in the global economy.

The essence of lean thinking is the elimination of waste. Since the 1990's lean manufacturing has been the tool of choice to reduce costs and eliminate waste while improving productivity and customer satisfaction (Henderson, 2007)

Lean tools are effective in the short term, but seem to diminish in effectiveness the longer then are in use (By The Numbers: Lean Results for Lean Programs, 2008). This paper will address the reasons for the reduction in the effectiveness of lean tools, and present a unique way of ensuring substantial improvements are sustained.

Keywords: A3 management style, Lean tools, Overall Equipment Effectiveness, Quick Change Over, Quality Control Process Charts, Waste

Introduction

In many cases, business success depends on the ability to compete in a global market. Trade routes between countries have existed for centuries, and business has been conducted globally for thousands of years, but recent technological advances have changed the face of business forever. Transactions can be completed in a split second, cloud computing facilitates instant video conferencing and document sharing abilities, and travel between countries is common. Today, thinking globally is more important than ever. Companies must compete in a global market in order to survive (Dora, Smit, & Viguerie, 2011). Corporations have to be concerned with competition down the street and from foreign countries such as China, Latin America, and Thailand. Emerging markets in India and Vietnam offer expanded market opportunities and more complexity in the marketplace (Sassen, 2011). Business leaders, in the quest for ever increasing revenues, recognize that untapped markets do still exist for their services and products, but these markets may not be local or even national in scope; rather, these untapped markets are located around the world in countries such as Botswana, Zambia, and former Soviet Bloc countries.

Gaining a competitive advantage over the competition is a key component to success. Companies are required to explore every facet of their operation to increase revenues and market share. They are quickly realizing revenue and net profit growth levels that would have been acceptable to investors a mere 20 years ago are cause for alarm and may result in declining stock prices today. Jack Welch, former CEO of General Electric, said that the new global economy would require companies to annually increase productivity by 8%-9% in order to be viable (Welch).

What mechanisms enable companies to compete in a global market? How do companies, regardless of size, product, geographic location, or service, gain a competitive advantage? There have been several initiatives introduced over the years that promised significant gains in competitive advantage: Total Quality Management (TQM) and Value Added Management (VAM) are a couple of these programs that have been popular in the past. These improvement programs did obtain results, but the results often were not sustained. Today, the program of choice to gain strategic competitive advantage, boost revenues and net profits, and increase employee involvement is lean manufacturing, or Lean, also known as the Toyota Production System. (Thun, Druke, & Grubner, 2010). The question is exactly what is Lean? How can it be implemented? How can success be measured?

Lean is a simple concept that revolves around identification and elimination of waste in processes and inventory (Durkee, 2008). The process sounds simple, but many companies find implementation of the lean tools to be challenging, frustrating, and often ineffective (Scaffede, 2002). The reason many companies fail with lean is because lean involves not only tool usage, but a change in corporate culture or the way business is conducted, which is often challenging if not impossible to achieve.

History of Lean

It is a common misconception that lean is a 20th century invention that centers on flow concepts developed by Motorola, General Electric, and 3M. Lean is not a recent business concept. Lean can be traced back to the 1450's when the Venetian Arsenal developed an assembly line for producing boats. The boats had a standard design, and moved through a floating assembly line to be assembled at various work stations (Womack, 2011). In 1926, the Ford Motor Company utilized the principles of lean in the production of Model T automobiles. Henry Ford, founder of the company, advertised that it only took 81 hours from the time iron ore was dug from the earth until that same iron ore had been converted into a new car that was rolling off the assembly line (Ford & Crowther, 1988). Lean concepts and philosophies progressed and matured over the years to evolve into the principles understood today as a concept for reducing waste and improving lead times and material flow. There are many organizations today that utilize lean thinking, but arguably the most famous company to exemplify lean thinking is Toyota Motor Company (Lander & Liker, 2007). Mr. Toyoda, founder of the company, studied Ford's writings and used them as a basis for development of the Toyota Production System. Toyoda concluded they could not manufacture items in the traditional sense due to lack of raw materials. Japan was, and continues to be, a country without

vast deposits of natural resources. It was necessary for Toyota, and other Japanese companies, to import the raw materials that were required to produce finished products. The raw materials were converted in value adding processes into completed products, and the products were then exported all over the world. In order to accomplish this phenomenal feat, these companies had to learn how to manufacture products with little inventory reserves.

20th Century Initiatives

For over 20 years, businesses have been trying to understand and perfect the Toyota Production System's lean tools and underlying philosophies. Companies have mistakenly assumed they will become lean and eliminate waste simply by applying a series of lean tools to their processes. Companies such as Danaher, TE Connectivity, Delphi and others have rolled out lean tools in earnest. These companies have obtained significant results, and eliminated waste in movement, production, inventory, and lead time. However, the impact of tool usage diminishes over time. There is a multitude of reasons for this, such as using the wrong tool in the wrong application, spreading tools to all applications just for the sake of using them, measuring results incorrectly, and lack of consistency in the application of the tools.

Metrics

Companies typically measure results using the key performance indicators of safety, delivery, productivity, quality, and cost. Lean tools are designed to drive improvements in each of these areas. For example, the quick changeover tool is designed to reduce changeover times required to go from last good piece in a previous factory order to first good piece in the next factory order. Reducing this time increases machine run time and leads to an increase in productivity. Companies can easily chart changeover times and verify trend improvement.

The same principle could be applied to banking by measuring the time it takes tellers to prepare a cash drawer and open a teller window for business. This changeover time or set up time could easily be measured, plotted on a graph and analyzed by supervisors. While reducing this time is beneficial, does it mean the business is lean? It does not. The factory processes and banking processes rely on an entire value stream of suppliers and customers. There are wasted resources present throughout the entire system. There are several lean tools that can be applied to any given situation. Lean tools are universal in their simplicity and ease of use. Lean tools can be applied to any company, organization, or institution to reduce waste and improve efficiency.

Diminishing Results

The problems of diminishing results are not flaws in the tools themselves, rather it is in the way they are applied and measured (Drickhamer, 2004). How does a company measure the degree of leanness it has? The method to measure this is difficult to define, and in many instances, has not been developed (Wan & Frank Chen, 2008). Companies often incorrectly assume simply using lean tools makes them a lean company. In order to measure the degree of leanness a company has, you have to understand the difference between creating wealth and

creating value. Lean does not create wealth - Lean creates value. Value is not equivalent to cost. Value is more related to customer expectations, experience, and performance (O'Cass & Ngo, 2011). Warren Buffett, a very successful investor, defined price as what you pay for an item or service and, and value is what you get after the purchase.

Companies must apply lean tools in a strategic, consistent manner. There are specific tools for specific situations. If the improper tool is used, then the results will be disastrous. It requires discipline, experience, and training to know when to apply specific tools (Hill, Weiyong, & Gilbreath, 2011). Failure to apply discipline will achieve poor results. Companies that fail to use a structured approach often give up their pursuit of lean and revert back to their traditional manufacturing mindsets of large production runs, huge warehouses full of inventory, and bottom line thinking. Other stumbling blocks to success exist in manufacturing companies with high product line mixes. These companies deal with a large variety of components and suppliers, and each component may be used in several applications. The Toyota Production System, or lean, was designed for low-mix, high volume facilities (Irani, 2011). Applying lean to high mix, low volume companies is a challenge. Western companies, who often have high mix, low volume products, have struggled with sustaining improvements. If the tools are simple and easy to apply, then why are they losing their effectiveness? What can be done to sustain the improvements made by using lean tools? Tools can be expected to lose effectiveness due to the concept of diminishing results (Sawicki, 2011). When tools are implemented into a new area, it is easy to make huge improvements. After implementation, it becomes harder to recognize the huge gains from the tools. The tools have to work harder to gain continued benefits. More effort or new approaches must be applied to improve return on investment from tool usage. A change in behavior must occur to gain additional sustained benefit from lean tools.

Lean tools will not institute the behavioral changes required to sustain continued improvement. Companies must change the way they approach business, their suppliers and their customers. Tools may be considered a “hard” innovation while behavioral changes are considered to be a “soft” innovation. Behavior cannot be overlooked when implementing lean tools (Takeuchi, Osono, & Shimizu, 2008). Many companies are on the right path, but they are missing one important link in process - Lean tools must be coupled with the A3 management style.

Introduction to A3

The A3 management style provides the structured framework necessary for behavioral changes required to achieve true lean results. What is the A3 management style or A3 as it is commonly known? As many readers will recognize, A3 is the popular denotation to a piece of paper that is approximately 11” x 17” (Delisle & Turner, 2010). However, the A3 is much more than a simple piece of paper - It is a methodology for planning, doing, checking, and acting. Planning, doing, checking, and acting or PDCA is a concept introduced by W. Edwards Demming, and taught to the Japanese automakers in the 1950’s (Deming, 1986). The A3 defines current conditions, analyzes those conditions, gives structure to action plans, and then measures the results of those plans. The A3 concept revolves around managers and supervisors managing

their responsibilities by going to the Gemba, “the place of work” (Allan, 2004). The A3 is a “hands on” management style that requires managers to be fully involved in the day to day activities in areas under their supervision. The A3 provides concrete structure to implement PDCA management. The PDCA management style can be used in conjunction with lean tool deployment to ensure the tools are properly used, results are captured and improved upon, and those improvements are submitted back to the tool as the new current state, where the cycle starts all over again. In this way, results are continually improved.

To properly utilize A3 thinking when using lean tools, one must think logically, objectively, and with vision and purpose. Results must be analyzed and a new future state must be visualized. The A3 document assists in this by providing a simple written format that, when properly used, can define the current state, improvement plan, expected results, and provide a timeline. This one document could, in theory, be presented to senior management for approval, funding, and resources. How can one document do all of this?

As illustrated by Figure 1 A3 template located in the appendix, the A3 form is divided into the following elements: Title, Owner/Date, Background, Current Conditions, Goals/Targets, Analysis, Proposed Countermeasure, Plan, and Follow-up. The A3 Process helps people engage in collaborative, in-depth problem solving. It drives users to find the root causes of problems rather than automatically accepting the first solution presented. Because of this, the A3 is sometimes known as first priority problem-solving.

The A3 Process can be applied in almost any situation, and it is particularly useful in effective lean tool rollout. For example, in the case of Quick Change Over that was discussed earlier, the A3 process would help verify the actual need of reducing changeover time, provide the baseline data, and assist the user in analyzing results. Since the lean process is dependent on continuous improvement, the A3 would guide participants into a continuous loop of analysis and improvement. Thus, companies would experience continuous improvement throughout the life of a product or process.

Conclusion

The A3 management process, when used in conjunction with lean tools, results in a new manufacturing model that leads to world class performance (Kane, 1999). Use of the A3 process in lean tool roll outs, Kaizen events, and Six Sigma projects results in empowered employees working in a team environment. Employees assume increased control and ownership of their operation. Management sets the goals and boundaries but allows the empowered employees to develop the methods and strategies necessary to achieve those goals. Through the A3 process, employees acquire the skills and responsibility for managing day to day operations (Carroll, 1996). The results of empowering employees can be tremendous (Raub & Robert, 2010). No one said changing from traditional manufacturing models to empowerment models was easy. It requires leaders to give up power to gain power. Bill Gates explained the theory by stating that tomorrow’s leaders will be those who empower others (Gates, 2011).

The A3 management style combined with the lean philosophy is the right combination to lead companies into the next century. The powerful combination of these philosophies give

Figure 1: A3 Template

Title: What you are talking about		Initials	Date	Owner
Background Why you are talking about it. - What is the business reason for choosing this issue? Current Conditions Where things stand today. - What's the problem with that, with where we stand? - What is the actual symptom that the business feels that requires action? <i>Show visually – pareto charts, graphs, drawings, maps, etc.</i> Target/Goal(s) The specific outcome required for the business. - What is the specific change you want to accomplish now? - How will you measure success? Analysis The root cause(s) of the problem. - Why are we experiencing the symptom? - What constraints prevent us from the goal? Choose the simplest problem-solving tool for this issue: - Five whys - Fishbone - QC Tools - SPC, Six Sigma, Shainin, Kepner Tregoe, others...	Proposed Countermeasure(s) Your proposal to reach the future state, the target condition. - What alternatives could be considered? - How will you choose among the options? What decision criteria? How your recommended countermeasures will impact the root cause to change the current situation and achieve the target. Plan A Gantt chart or facsimile that shows actions/outcomes, timeline and responsibilities. May include details on the specific means of implementation. - Who will do what, when and how? <i>Indicators of performance, of progress.</i> - How will we know if the actions have the impact needed? - What are the critical few, visual, most natural measures? Followup <i>Remaining issues that can be anticipated.</i> - Any failure modes to watch out for? Any unintended consequences? Ensure ongoing P-D-C-A. Yokoten as needed.			

companies, both large and small, the competitive advantages they need to be competitive in the global marketplace, and to be successful. Using this approach will add value to their products and services. Supply chains will become integrated into the service or manufacturing process. Lead times to customers will be reduced. The entire process from order placement until order fulfillment will become streamlined, and dynamic. A3 and lean allow service organizations, companies, distributors, and suppliers of goods and services to gain competitive advantages.

Appendix

(Shook & Womack, 2008)

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Classroom Antics: Fun with a Purpose

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Abstract

Student attention and engagement in the classroom is an ongoing problem that has generated a considerable amount of press in recent years. Some studies report that student attention begins to fade within 10 - 18 minutes (Weimer, 2009). While the statistics related to how long students stay attentive and engaged has been questioned (Wilson & Korn, 2007), most faculty will not argue that student attention and engagement can be a significant problem in the college classroom. The question then becomes, “how do we keep students attentive and engaged in course material?” This paper attempts to provide some of the solutions the authors use. It does not attempt to answer the complete question on student attention and engagement.

Introduction and Background

According to Downs (2009) student engagement has reached a critical mass among universities with schools putting more emphasis on keeping students involved in course material. Some studies suggest that student retention and success hinges on a number of factors including student engagement (THECB. n.d). Other research appears to indicate that the more time students spend involved in learning activities, the more they learn (AFCEC, na).

Student engagement has been defined as involvement in the activities and events offered by a course (Natriello 1984). Others have defined it in more scientific terms (Skinner & Belmont, 1993). The literature does not seem to support one standard definition of student engagement. Therefore, for the purpose of this paper the authors have defined student engagement as “getting and keeping the attention of students in face-to-face classes.”

The preponderance of research into student attention spans seems to back the notion that student attention declines over time spent in the classroom and ranges from 10-18 minutes (Weimer, 2009). While attention spans have been an issue since students entered the classroom, attention spans seem to be declining in recent generations. Some findings on student concentration in the classroom indicate that they suffer from sensory overload (Moses, 2000). Others believe it is the ability of students to evaluate information quickly before moving on to other thoughts (Rushkoff, 1996).

The literature on student attention and engagement strongly suggest that classroom activities can help (Faculty Focus, 2009). Kher, Molstad and Donahue (1999) suggest the use of humor as a technique to get student attention and found research support for its use. Hoover

(2006) found that the use of video clips can add value to the classroom. There is a growing use of illusions (magic) in classrooms (Deviney, 2010). It is used to regain attention, make a point and as an ice breaker. The following information provides a summary of how the authors use humor, video clips and illusions in the classroom.

Humor in the Classroom

Humor in the classroom can include jokes, riddles, puns, funny stories, humorous comments, cartoons and other humorous items (Bryant, Comisky, and Zillmann, 1979). Humor seems to affect student attention and motivation (Bandes, 1998). The authors prefer the use of cartoons, humorous video clips and stories. However, humor should be used with some understanding. Below are some thoughts and guidelines on the use of humor:

1. Humor should be appropriate for the situation and topic (Edwards & Gibboney, 1992).
2. It should fit the personality of the instructor (Edwards & Gibboney, 1992)
3. It must never be directed at an individual or a group. (Snetsinger & Grabowski, 1993).
4. Avoid sarcasm and put-downs. (Edwards & Gibboney, 1992).
5. Don't be afraid to be funny (Powers, 2005). Lighten up on yourself.
6. Make it relevant to the topic (Powers, 2006).
7. Don't be afraid to experiment and even fail.

With the arrival of the internet, jokes, riddles, stories and cartoons are very easy to obtain. Of course, you should check out the copyright issues prior to using any copyrighted material.

Video Clips in the Classroom

Ted Powers suggests the following (Powers, 2009, para 33)
“You can facilitate learning by using funny movie or television clips to bring to life course concepts or by asking students if the example was accurate or not, and in what ways. Students often enroll in psychology courses expecting to see clips from *A Beautiful Mind*, *Silence of the Lambs*, *One Flew Over the Cuckoo's Nest*, and *Rainman*. Why not show them clips from *Me, Myself & Irene* (Dissociative Identity Disorder), *Monk* (Obsessive-Compulsive Disorder) and *Deuce Bigalo: Male Gigolo* (Narcolepsy)? Sometimes merely referring to a funny show can recapture students' attention. For example, during a discussion of brain structures you could note that anyone who has seen *The Waterboy* (a slapstick comedy about a simpleton who works for a college football coach as his waterboy and is found to be an excellent defensive player; he is then added to the team and must attend class) should be familiar with the medulla oblongata. If you could say it like Adam Sandler, the film's star, you may have students laughing out loud.”

Similar guidelines apply to video clip usage in the classroom as it does to humor. The authors would add one additional caution. Be aware of your audience and the morale and ethical norms that apply. Avoid the use of foul or offensive language. University policy must be taken

into consideration also. Additionally, be aware that copyright laws may apply to some usage of videos.

YouTube (www.youtube.com) is a good source of video clips. Some are very professionally done. However, showing YouTube clips will require an internet connection. The authors suggest the use of a program entitled YouTube Downloader (http://download.cnet.com/YouTube-Downloader/3000-2071_4-10647340.html). This program allows you to download the YouTube video clip and store it on your hard drive. Therefore, an internet connection is not required. There are a number of video capture software packages commercially available for capturing clips from various media forms. These are relative inexpensive and easy to use. Conduct an internet search using the key words “video capture.” Amazon.com is also a good source for video capture hardware and software.

Illusions in the Classroom

Illusions or magic has been a growing trend in classroom activities, especially at the K-12 grade level. David Levin and Kevin Spencer (Healing, n.d.) when working with students theorized that students benefited in the following ways:

- Rapport building – connecting with the student and delivering a lesson.
- Empowering the child and self-esteem – teaching the child the “secret” of the trick.
- Instilling hope – can symbolize optimism, possibility of change and indicate that solutions are not always as complicated as they appear.
- Metaphor – bring to the surface unspoken thoughts and feelings.
- Reframing – teaching the skill of reframing can help students look at things from a different point of view.
- Interpersonal skills – modeling appropriate interpersonal skills during the illusion and then allowing the student to practice the illusion using the same skills.
- Group cohesion – effective icebreaker for new groups.
- Assessment tool – used to assess learning disabilities.
- Academic learning – practice cognitive skills such as following complex directions, problem solving, etc.
- Trust building – revealing the “secret” can help a student open up during counseling.
- Recognition of boundaries – setting clear expectations about the illusionist’s personal space and equipment.

Often illusions purchased at magic supply stores will have a scripted patter. Beginners at illusions should start with easy tricks. There are literally hundreds of self-working devices (Forgaard, n.d.). The effect is built into the device. One of the best ways to find illusions is to visit a magic supply shop (Pogue, n.d.). Most shops have sales staff that can perform the illusions, make suggestions and train you on how to use the device. However, they will not reveal the “trick” until after you purchase the illusion.

The use of illusions in the classroom should be based on the following simple principles:

1. The illusion should not overpower the lesson (Linn, n.d.) – Know what you are teaching and find a trick that will enhance the message. There is some danger here since some students will spend time trying to figure out the trick rather than listening to the discussion. You can perform an illusion prior to break or just before the end of class which will reduce this possible negative impact.
2. Practice and then practice some more (Wilson, 95) – Practicing will help you both perfect the illusion and the accompanying message (the patter). Andi Gladwin recommends practicing using a digital movie camera (Gladwin, n.d.). He goes on to recommend viewing your performance from different audience angles.
3. Never repeat a trick for the same audience (Wilson, 95) – Repeating an illusion for the same audience increases the chance they will “catch you.” Additionally, often illusions are based on similar concepts and techniques (Linn, n.d.).
4. Never reveal the secret (Wilson, 95) – Revealing the “secret” is one of the cardinal mistakes that a beginning illusionist makes. It is really a disservice to your audience since it eliminates the mystery, excitement and fun of the illusion.

Illusions can be used for many purposes, but using them to get attention and draw the audience back and make a point about the lecture, seems to be most appropriate for instruction.

The following books and internet links are a good place to learn about performing illusions:

- Magic for Dummies (1998) published by Hungry Minds: New York
- The Complete Idiot’s Guide to Magic Tricks (1998) published by Alpha Books: New York
- Mark Wilson’s Cyclopedia of Magic: A Complete Course (1995) published by Running Press: Philadelphia
- About.com: Magic & Illusions
<http://magic.about.com/od/beginningmagic/a/act.htm>
- Parlor Magic (beginners) <http://www.selfworking.com/parlor.htm>
- MagicTricks.com <http://www.magictricks.com/>
- Daytona Magic <http://daytonamagic.com/>
- Amazon <http://www.amazon.com>

Conclusion

“One of the greatest sins in teaching is to be boring” (Baughman, 1979, p. 28). Effective use of humor, video clips and illusions will help teachers engage students and establish rapport (Powers, 2005) with them. With the increasing use of alternative educational delivery systems such as extended meeting times (e.g., all-day Saturday classes) or compressed teaching sessions (e.g., mini-mesters), students can become bored and drift off. Instructors need to become more creative in keeping and regaining the student’s attention (Gleason, n.d.). With new studies suggesting that the average attention span of college students is just ten minutes (Richardson, 2010), it is very important to re-energize the classroom. Our personal experience with these attention and engagement techniques has convinced us that they work. Students tend to mention these techniques in student evaluations and personal comments.

We have only mentioned a few of the techniques that are available for engaging students. A quick internet search will provide many others. We would like to encourage you to evaluate your current classroom activities and add to your toolbox.

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Issues of War, Health and Politics: A Case Study on the 1944 U.S. Presidential Election

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Abstract

Going into the 1944 presidential election, Franklin Roosevelt's campaign faced a number of disturbing issues. In addition to the World War, the campaign committee needed to decide how to deal with questions about Roosevelt's deteriorating health and about his vice president, Henry Wallace, who was gaining a reputation as a spiritualist and communist sympathizer. This case study addresses the questions surrounding these issues and their broader implications.

War, Health, and Politics: A Case Study on the 1944 U.S. Presidential Election

In 1944, with World War II raging and Americans at home facing shortages, hardship, and fear for their children, parents, friends and relatives serving in the military, President Franklin Delano Roosevelt enjoyed a high level of popularity with the general electorate. As he was completing his third term, the re-election campaign was weighing on his mind. Some members of the Democratic Party were skeptical about economic and social policies but did not dare offer opposition to his re-nomination because of his popularity with rank and file voters. Still, some potential problems to a successful campaign were causing misgivings.

The obvious decline in Roosevelt's physical appearance and rumors of secret health problems caused concern among supporters. In spite of Roosevelt's vigorous physical campaign, rumors continued to grow about his overall health. Although the general electorate was aware of the fact that Roosevelt had survived polio in 1921 and was unable to walk without the assistance of leg braces and crutches, this was not considered a serious issue until 1944, when his strength obviously deteriorated and he was confined to a wheelchair. His doctors and staff tried to reassure the public at this point, but were less than forthcoming about the state of Roosevelt's health (Clausen, 2005). Continuing deterioration due to the aftermath of his illness and the stress of the presidency had taken its toll. Some respected neurologists believed the president might have suffered a small stroke and doubted that he had long to live (Bateman, 1956).

This concern over Roosevelt's health resulted in a call to remove his vice-president, Henry A. Wallace, from the 1944 race (Persico, 2001, p. 344). Wallace was viewed as too

closely allied with the left wing of the Democratic party and too personally eccentric to be next in line for the Presidency. Many Democrats were uneasy with Wallace's mystical, pantheistic spiritual beliefs. Even more disturbing was that he wrote coded letters discussing prominent politicians (such as Roosevelt and Winston Churchill) to his controversial Russian spiritual guru, Nicholas Roerich, which became public in 1935 (Beichman, 1994; Errico & Walker, 1989). Finally, Wallace was identified as a communist sympathizer, openly supporting and endorsing American politicians who championed communist philosophies (Beichman, 1994).

Heading into the 1944 election, fund raising efforts and other activities made it clear that the Republicans believed that Roosevelt could be defeated. They planned on waging a vigorous campaign against the New Deal and the massive expansion of government that had taken place under the twelve years of Roosevelt's administration. Republicans also mounted attacks on corrupt big-city Democratic organizations and the increased influence of American communists in both the Democratic Party and the federal government.

The Case

You are a 34 year special assistant named Ronald Success and have been serving on Secretary of State Cordell Hull's staff since 1939. Your first assignment after arriving in Washington was to secretly develop a plan to move the U. S. away from an isolationist position and foster a more favorable public attitude toward the plight of Great Britain and her allies. The success of your early endeavors has resulted in Secretary Hull appointing you and four members of the committee to re-elect Roosevelt in 1944 to develop an assessment of the possible effects of Roosevelt's health and Wallace's spiritual beliefs and communist leanings on the fast approaching presidential election of 1944. You have been provided with information about the current political environment as well as attitudes of various groups toward Wallace and Roosevelt. Your responsibility is to develop a white paper on how these issues might affect Roosevelt's re-election chances and brief Secretary of State Hull on your findings and recommendations (Bateman, 1956).

Although all members of your committee are Roosevelt supporters, it is necessary to put away partisan concerns during deliberations and to place the welfare of the nation above re-election efforts and activities. Despite the upcoming election, the successful outcome of the war remains the most important concern. Total cooperation and the support of all citizens are needed to insure the war effort is successfully concluded.

Discussion Questions

1. One of Roosevelt's primary concerns at this point in his presidency is waging the war in Europe. Should public opinion concerning his health, his running mate or the election in general be permitted to distract attention from this effort?
2. Henry Wallace not only serves as vice president but is a U.S. citizen with certain basic constitutional privacy rights. How would anyone know about his spiritual beliefs or his

confidential communications with his spiritual guru? Has his right to privacy been invaded?

3. Should the President be forced to drop a person from the ticket because of criticism from the far right of the party?
4. Roosevelt conducted a rigorous, strenuous re-election campaign. Should this in itself be enough to dampen questions concerning his physical health?
5. Is it possible for Ronald Success and the four members of the Committee to Re-elect the President to maintain neutrality in their evaluation of the upcoming presidential election in 1944?
6. Do the issues/questions presented in this case study have relevance for today's world? Consider especially the present world political environment, with particular emphasis on U. S. relationships with nations.

Teaching Notes

This case study provides supplementary material for textbooks and lectures on making important, difficult, complex ethical decisions which will face close scrutiny by the public. The case study is appropriate for both college and university undergraduate and graduate classes in the areas of ethics, public administration, management, industrial relations, industrial psychology, organizational behavior, political science, religion, teacher education, etc. It would also be appropriate for employee training at the U. S. Office of Personnel Management, the Central Intelligence Agency, other public administration agencies, and large organizational training programs.

Some Suggested/Possible Answers to the Questions.

1. The main concern of the president and his administration is successfully fighting the war in Europe and the Pacific. Decisions concerning the war and military tactics should be made on a business-like basis. Public opinion is often measured and gauged by those who make the loudest noise, but there is usually a large group that remains silent unless forced into action. If public opinion were allowed to prevail it would undermine the authority of the president. The best approach at this time would be to shift attention toward the war effort and away from purely political issues.
2. The behavior of high-ranking officials should be beyond reproach especially in wartime, and misguided actions could seriously undermine present war efforts as well as causing additional, serious problems in the post-war era. Although the U.S. is currently allied with Russia, U.S. leaders remain fully aware of Communist plans for eventual world domination. National security interests dictate that any type of communication that might adversely affect war or post war activities must be monitored to insure the best interests of the country.
3. The office of vice president is very important. Much of the criticism of Henry Wallace is coming from within the Democratic Party and is not confined to the far right wing of the party or nation. Astute political leaders will listen to and evaluate legitimate concerns that have been raised by their own supporters as well as non-supporters.

4. Communication avenues in 1944 were very rudimentary when compared to the present day. Newsreels in 1944 did not present very clear images. If a medical doctor or others are able to observe this drastic change in the President's appearance, questions will continue. Two side notes are interesting. First, while Roosevelt could not walk without assistance and was sometimes confined to a wheel chair throughout his presidency, the general electorate was not concerned about this fact. Second, President Roosevelt passed away five months after his re-election.
5. It is unlikely that the committee members would be able to remove themselves from their own personal and party interests and render an impartial decision in this case. This answer is highly influenced by observing political, governmental and leaders of organizations providing responses they know are expected, rather than independent and objective. Examples include the responses of the Catholic Church to the recent sexual abuse scandals; U.S. representatives debating the 2010, 2011, and 2012 federal budget; and leaders of oil companies such as BP discussing deep-water drilling safety.
6. This question is dependent on current affairs and there are many possible answers. A few examples are given below:
 - During the 1944 presidential campaign, Republicans waged a vigorous campaign against Roosevelt based on criticism of the New Deal and the expansion of government. In 2011-12, the Republican political campaign against President Obama is based on criticism of the Affordable Care Act of 2010 and other expansive government programs.
 - Questions about the health of the president and vice president in earlier administrations made some people question their fitness for those positions. Specific examples include former Vice President Dick Cheney's heart problems and President Ronald Reagan's age and general health.
 - On the issue of war, a striking contrast can be drawn to 1944 and today. Unlike the situation in 1944, the U.S. is currently involved in an ongoing conflict in the Middle East with very little cohesive support for the war expressed in this country. President Obama's decision to withdraw troops has met with both support and objections from citizens and other politicians. With the exception of the initial war against Afghanistan following 9/11, the United States has seen very little consensus, cooperation, or support for any overseas conflict since the end of WWII. For example, the wars in Korea and Vietnam, conflicts in Bosnia and Iraq, and the continuing action in Afghanistan have all run into widespread, vocal opposition in the U.S.
 - Finally, many have compared President Obama's policies during the "Great Recession" of today with those of President Roosevelt during the "Great Depression." Interesting parallels have been drawn in the areas of government spending and taxation. Both Presidents increased federal spending, battled unemployment, and raised taxes to spur the economy (Folsom, 2010).

Outcome

Roosevelt replaced Henry Wallace as his vice-presidential candidate with Harry Truman and easily won the 1944 election, winning 53.4% of the popular vote and taking the electoral vote by 81.4% to Dewey's 18.6% (U.S. Politics Guide, 2006). Five months later, on April 12, 1945, Roosevelt died from a cerebral hemorrhage (Current Biography, 1945). Henry Wallace served as Secretary of Commerce from 1945-46 and conducted an unsuccessful campaign for president in 1948 on the Progressive Party ticket. Trained as a farmer and agriculturist (he had served as Secretary of Agriculture during Roosevelt's first two terms), he became a plant geneticist following his failed run for the presidency. Wallace died in 1965 (Current Biography, 1965).

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Availability of Employee Assistance Program (EAP) Services

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Abstract

Most industrial and organizational leaders in the U.S. believe that positive management practices and attention to employees result in more effective organizations. The Hawthorne Study results, along with other important research, generally support this premise. In recent years, societal stress levels have demonstrated an upward trend, which has had a negative effect in the workplace, especially in terms of the prevalence of alcohol and drug use. Enlightened managers continually seek out and utilize professional advice in an attempt to provide needed employee support. As a result, more organizations are providing Employee Assistance Program (EAP) services for employees. In an attempt to measure the availability of EAP services in the local region, a convenience survey was developed and administered to Athens State University students who are primarily employed in Alabama and Tennessee. In this paper, results of this survey are compared to national statistics gathered through the National Compensation Survey and are discussed in relationship to the development, utilization, and effectiveness of Employee Assistance Programs as described in the professional literature.

Development of the EAP

The Employee Assistance Program (EAP) is rooted in treatment for alcohol addiction in the 1930s. Alcoholics Anonymous (AA), an organization founded by Bill Wilson and Dr. Bob Smith, “fostered the concept of alcoholism as a disease and promoted a long-term treatment for recovery” (Riley & Zaccaro, 1987, as cited by Elliot & Shelley, 2005, p. 145).

Either corporate social responsibility or concerns over poor employee job performance were the initial reasons that corporations reached out to those suffering from alcoholism. “By the 1940s, several major corporations were actively promoting helping relationships between alcoholic employees and AA members” (Trice & Sonnenstuhl, 1985, as cited by Elliot & Shelley, 2005, p. 145). Corporations’ concern over poor job performance increased through the next several decades and so did EAP services. Normand, Lempert, & O'Brien, (1994) wrote that “In 1979, 57% of Fortune 500 companies had some type of program that provided assistance to employees with alcohol problems, ... [and] by 1998, an estimated 48% of companies with more

than 100 employees and 15% of small businesses had EAPs” (Stieber, 2000, as cited by Elliot and Shelley, 2005, p. 145).

EAPs have evolved a great deal since the early days of the 1940s. DataLink reports:

“The range of services provided by EAP professionals today has broadened to include marriage and family problems, stress related problems, financial and legal difficulties, and psychological and workplace conflict. Employee Assistance Programs furnish professional counselors, who provide confidential assessment and short-term counseling to employees and their families in order to assist in dealing with these, and related, matters” (2012, para. 1).

As EAPs have evolved, they have assumed a more comprehensive approach, as more modern EAPs “also encompass a host of other services including Child Care, Elder Care, Critical Incident Stress Management and Legal and Financial services” (Masi, 2007, p.1). In addition: while the EAP started out as a way to help employees with alcohol and drug addiction, EAP professionals today say they need to be well rounded to address an array of problems. Issues that may affect job performance that are brought up by employees as often as any traditional addiction include personal relationships, depression, and anxiety, experts say (Pace, 2006, p.1).

For the purposes of the annual Employee Benefits Survey, the U. S. Bureau of Labor Statistics defines the EAP as:

“programs provide [a] structured plan, closely related to employee wellness programs, that typically deals with more serious personal problems than the essentially medical problems covered by wellness programs. EAPs can offer referral services, or referral services in combination with counseling services. Both the referral services and the counseling services may be supplied by company personnel, by an outside organization under contract, or by a combination of both” (“Other Benefits,” para. 5).

Figure 1, taken from Steel’s work, clearly shows the evolution of EAPs. The “problem addressed” changed from a focus solely on alcohol to job performance and finally to the wide range of personal or family concerns. Also note that the “source of referral” changed from that of the coworker or supervisor to self-referral, thus placing the responsibility more squarely on the “patient.” Finally, we note that the types of interventions have changed as well. It would appear that the treatment model used by EAPs has become more holistic and considers the whole person when developing treatment interventions.

Justification for EAPS

There is a real need for an effective, modern EAP to help employers address those problems that are faced by their employees. Some of the problems employees may bring with them to work go beyond drug or alcohol abuse issues. Included now are problems stemming from domestic violence, marital issues, family and extended family issues, and other emotional

or psychological issues. However, drug and alcohol abuse remain very common and it is not uncommon for employees to self-medicate as a means of coping with their personal issues. This presents employers with work safety concerns. Nancey N. Delogu, a recognized expert on drug-free workplace law and policy, states that “workers involved with illegal drugs or who abuse alcohol are statistically more likely to be involved in a workplace incident or sustain an injury” (2007, p. 48).

It is well documented that substance abuse on the job has additional risks and costs to the employer, to the employee who abuses, and to his or her fellow workers. According to the National Survey on Drug Use and Health (2007):

“Substance use in the workplace negatively affects U.S. industry through lost productivity, workplace accidents and injuries, employee absenteeism, low morale and increased illness. The loss to U.S. companies due to employees’ alcohol and drug use and related problems is estimated at billions of dollars a year” (para. 1).

According to the Occupational Safety and Health Administration (OSHA), a majority of adults who abuse drugs are employed. “Of the 17.2 million illicit drug users aged 18 or older in 2005, 12.9 million (74.8 percent) were employed either full or part time.” More tragically, additional research indicates “that between 10 and 20 percent of the nation’s workers who die on the job test positive for alcohol or other drugs” (2007, para. 1).

The American Council for Drug Education (ACDE) is deeply concerned over American workers using drugs and alcohol and reports that “more than 70 percent of substance abusers hold jobs; one worker in four, ages 18 to 34, used drugs in the past year; and one worker in three knows of drug sales in the workplace” (1999, para. 2). What is more shocking to this researcher is that “Americans consume 60 percent of the world’s production of illegal drugs: 23 million use marijuana at least four times a week; 18 million abuse alcohol; 6 million regularly use cocaine; and 2 million use heroin” (ACDE, 1999, para. 3).

Elliot & Shelley (2005), citing Atkinson (2001), indicated:

“that 12% of the workforce reported being heavy drinkers and that 47% of industrial injuries and 40% of workplace deaths were linked to alcohol consumption. Almost 14 million Americans use illegal drugs; as workers, they are 3.6 times more likely to be involved in an accident at work and 5 times more likely to file for workers’ compensation benefits than nonusers (Nighswonger, 2000). In 2002, nearly 15 million adults had alcohol-related problems (Substance Abuse and Mental Health Services Administration, 2002), ranging from missing a day of work to serious accidents, and approximately 100,000 American lives are lost each year to the effects of alcohol use, either through diseases or accidents.” (Goplerud & Cimon, 2002) (p. 125).

The U.S. Commission on Civil Rights addressing substance abuse in the workplace reported “that 10 percent to 25 percent of the American population is sometimes on the job under

the influence of alcohol or some illicit drug” (cited in Gracia, 1996). The Commission report goes on to report that:

“The social and economic costs of substance abuse in America are staggering. In a report issued in 1998 by the National Institute on Alcohol Abuse and Alcoholism and the National Institute on Drug Abuse, it is estimated that the cost of alcohol and drug abuse for 1995 was \$276.4 billion, of which \$166.5 billion was for alcohol abuse and \$109.8 billion was for drug abuse.” (“Sharing the Dream,” 2000, para. 1)

Substance abuse by employees on their off time is more difficult to track. However, there are provisions for companies to enforce drug testing that will help catch those unwilling to remain drug free. The Substance Abuse and Mental Health Services Administration (SAMHSA) Division of Workplace Programs provides guidance for employers on workplace drug-testing issues.

Utilization: Comparison of Two Surveys

The following section discusses two surveys that measure the availability of EAP services.

The National Compensation Survey (NCS) is a comprehensive survey conducted regularly by the U.S. Bureau of Labor Statistics (BLS). The March 2011 NCS contains data taken from a survey sample of 12,821 private business establishments surveyed. Of that number, 8,256 responded; 1,955 of the respondents indicated that the company was out of business or out of scope and 2,610 were unable or refused to provide data. The scope of the NCS survey represents approximately 108 million workers, of which nearly 83 million were considered full-time workers and the remainder, less than 26 million, were part-time workers.

Results from the NCS concerning access to EAPs can be compared to a local survey that was developed and administered by Athens State University (ASU) faculty and administered ASU students who were primarily employed in Alabama and Tennessee. It utilized a convenience sample of 85 students enrolled in selected undergraduate management classes.

RESULTS

The NCS found that, on average, 50% of all civilian workers had access to Employee Assistance Programs in their workplaces. The survey found that the prevalence of EAPs varies by size of firm, with only 27% of companies with less than 100 employees offering programs as compared with 71% of firms with 100 or more employees; 84% of companies with more than 500 employees offered EAPs. Access increased as average wage increased, with 22% of the lowest tenth having access and 71% of the highest tenth having access. Those employed in union establishments were approximately 50% more likely to have EAPs (75% vs. 46%). Construction and mining workers were least likely to have access to EAPs (30%), while those in nursing, management, and teaching positions were the most likely (76%, 68%, and 64%, respectively).

Over half of workers employed full time (55%) had access to EAPs, as opposed to 34% of those employed part-time.

Of the respondents from the ASU survey, 51% were employed in firms that had employee assistance programs available, a figure which is almost equal to the average NCS results. When asked about the types of services available, the majority of respondents reported that their employers' EAPs (84%) provided counseling services for alcohol and substance abuse, family and personal issues, and other problems. When employees at firms with EAPs were identified as being under the influence of drugs or alcohol at work, 44% were required to utilize the services of the EAP. In firms without EAPs, approximately 14% require such employees to seek help from an outside counseling service.

Of the survey participants currently working, 72% reported that their employers had written alcohol and/or drug abuse policies. Over a third of the respondents (38%) reported that substance abuse awareness training is mandatory at their workplaces; in most of these firms (64%), the training is repeated periodically.

Survey respondents were also asked about the prevalence of substance abuse in the workplace. Thirty percent reported observing employees under the influence of drugs or alcohol at work, and 70% reported that immediate action is taken when a supervisor sees an employee under the influence. The most common types of disciplinary action are suspension (12) and dismissal (33).

Effectiveness of EAPS

How effective are EAPs? A study of the effectiveness of on-site workplace counseling conducted by McLeod and drawn from a review of research in the professional literature, concluded that "workplace counseling is generally effective in alleviating symptoms of anxiety, stress, and depression ... and has a moderate impact on job commitment, work functioning, job satisfaction and substance abuse" (p. 245). McLeod focused on four factors: client satisfaction, psychological function, the meaning of work, and work behavior. He found:

1. Client satisfaction with workplace counseling is high. More than 80% of clients, across a wide range of organizational settings, have reported being "satisfied" or "highly satisfied" with the services provided.
2. Workplace counseling has consistent and significant short-term benefits in terms of improving employees' levels of stress and psychological well-being. The study also showed positive impacts for workplace counseling in reducing symptoms of depression. Depression can reflect an ongoing problem manifested by low motivation, withdrawal, fatigue, and feelings of hopelessness, all of which can negatively impact work performance. Other psychological issues that may be ameliorated by counseling include anxiety, low self-esteem, burnout, occupational post-traumatic stress disorder, and drug and alcohol abuse.

3. In terms of attitudes toward work, there is evidence that workplace counseling has the potential to improve such attitudes, but most clients do not report a severe enough problem with attitude toward work to make this a major goal or outcome of counseling.
4. One of the key criteria for establishing a workplace counseling program in most organizations is to improve workplace behavior. The majority of research into the effectiveness of counseling programs in this area shows a consistent and significant impact on several dimension of work behavior, including absence, retention, reduction in accidents, workplace violence, and disciplinary cases; however, the number of variables that effect behavior at work make more research necessary to determine the exact relationship between counseling and improvements in workplace behavior.

However, McLeod concluded that most of the gains achieved through workplace counseling are short-term benefits and may not persist for more than one year.

Lu, Lin, and Hsu, studying high-tech employees in Taiwan (2009), found that effective EAPs can lower stress levels and decrease employee burnout. They defined an effective EAP as one that takes innovative approaches to preventing, identifying, treating, and solving personal problems, including employee stress, and noted that some EAPs fail to provide effective services because “they are superficial and treat employees as if they are all alike. The structure of an EAP may fail to recognize that particular environments react with particular people” in different ways (p. 373).

In a study of employees who had been through an EAP program for substance abuse, Elliot and Shelley (2005) compared rates of workplace safety incidents for former employees who had been rehired following participation in the EAP and the company’s regular employees, and studied the safety incident rate of employees before and after EAP intervention. The study showed that employees returning to work after EAP intervention had a lower rate of safety incidents than the rest of the general workplace population. However, they found no difference in the incident rates before and after EAP intervention, indicating that EAP services may not have a significant impact on workplace safety risk.

A study of the factors that influenced employees to use EAPs determined that these factors included trust in the program and in the confidentiality of the program, familiarity with EAPs or other counseling services, and accessibility of the services (Milne, Blum, & Roman, as cited in Athanasiades, Winthrop, & Gough, 2008). This conclusion was supported by research by Athanasiades et al. Their study indicated that EAP clients usually had some previous experience with counseling or mental health facilities, indicating familiarity with similar programs. Employees utilizing the EAP services also preferred to use on-site counselors instead of going off-site, and preferred face-to-face rather than telephone counseling, indicating the importance of accessibility to services. Confidentiality was also extremely important to clients.

Conclusion

As seen from the studies discussed here, employees have been offered more access to EAPs over time. Those employees that utilized the services were generally satisfied with the programs. Companies are doing a good job of incorporating EAPs into their substance abuse training programs. Comparison of the results of the NCS and the ASU survey indicates that respondents have similar characteristics and experiences. Is it possible that part of this correlation can be attributed to the fact that the geographic area served by Athens State includes a large military base and a high concentration of defense contractors. Generally, larger companies offer better employee benefits across the board.

For further research, the authors are planning a longitudinal study. With the anticipated implementation of the Patient Protection and Affordable Care Act in 2014, an increase in EAPs may be seen; the impact of this will be reflected in the longitudinal study and should provide additional interesting results. In addition, a cost-benefit study of EAPs needs to be undertaken.

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Appendix

Figure 1: Approximate Stages in the Development of Employee Assistance Programs

	Occupational Alcohol Programs	Early Employee Assistance Programs	Modern Employee Assistance Programs	Managed Behavioral Health Care/EAPs
Time Period:	1940- 1970	1970s	1980s	1990s
Problem Addressed	Alcohol only	Alcohol Emphasis	Personal concerns influencing job performance	Wide range of personal and family concerns
Source of Referral	Coworker or Supervisor	Supervisor	Self or Supervisor	Self
Indication	Alcohol symptoms	Job performance	Job performance or personal concern	Personal or family concern
Intervention	Program support or self-help group	Residential treatment	Residential or community treatment referral	In-EAP counseling or community referral
Source: Steel, 1998				

State of the Art Business Intelligence Curriculum

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Abstract

There has been widespread investment in business intelligence/business analytics within industry because of the potential for improved managerial decision-making through mining the vast quantities of data collected by modern corporations; however, despite major recent curriculum changes in business schools, there has been very little attention given to this field from the top universities. This has been true of both research and teaching and is compounded by inadequate quantitative literacy possessed by U.S. students and antipathy towards quantitative literacy among faculty. This paper documents the importance of business intelligence within business and presents the curriculum in one course that exemplifies the current state of coverage in information systems programs for the business intelligence component in the US teaching orientated schools.

Introduction

Computer-based decision support continues to evolve from its early structured reporting roots. Command line interfaces and green bar reports are relics of the past, replaced by graphical interfaces that allow users to slice and dice and view data in a myriad of ways. Operational personnel now have access to real-time information when performing their jobs. Decision support now extends beyond organizational boundaries as customers and suppliers are given access to company data. Decision support has changed from a nice to have component to a competitive necessity. Even the name of the field decision support systems (DSS), has undergone a change as the business intelligence (BI) term becomes more widely used.

As has been suggested by others, DSS has changed over the years, with many new kinds of applications (e.g., OLAP,dashboards/scorecards). In 1989, Howard Dresner, later an analyst at Gartner, coined the BI term. It is especially popular in industry and is used to describe all decision support applications. Its popularity is also finding its way into academia. Although a recent survey of the top fifty programs finds BI in the curriculum is lagging woefully behind. This paper will attempt to illustrate that while DSS has morphed into BI, the information systems programs have more than kept up with industry.

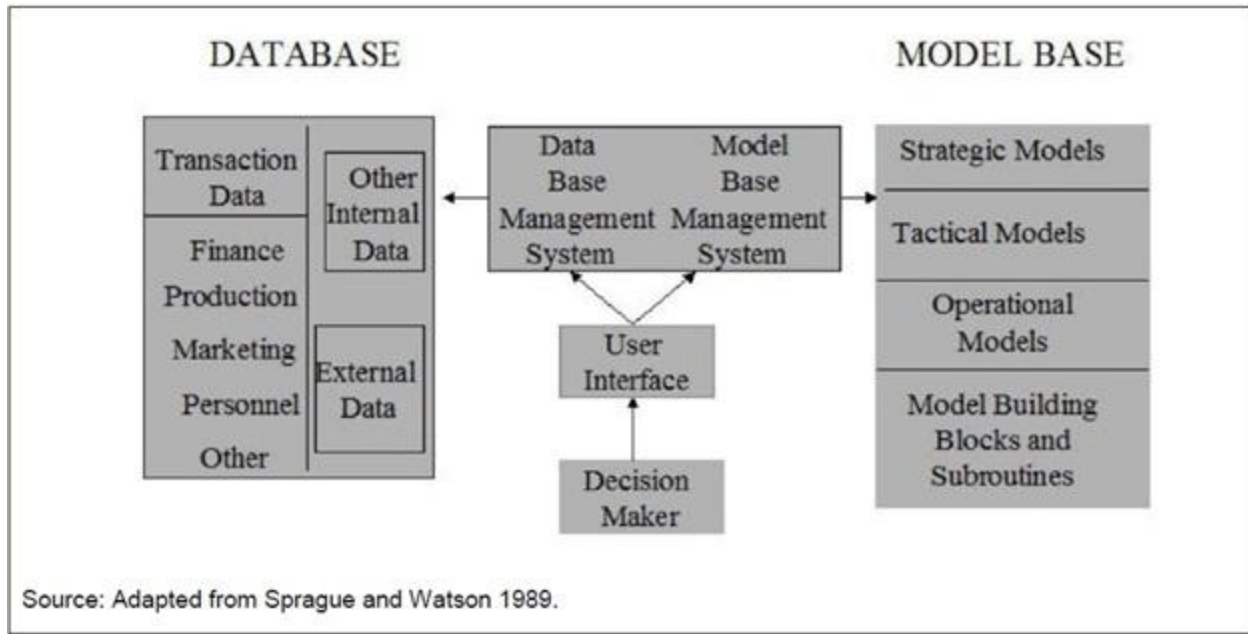


Figure 1 – DSS Model (Sprague and Watson, 1989).

Many business schools have had a course or emphasis in decision support and/or decision support systems (DSS) for many years. As depicted in Figure 1 (Sprague and Watson, 1989) DSS has been defined as the marriage of database with model bases that allow a user to model decisions and play so-called “what-if” games with the company data in order to make better decisions. The basic premise has not changed, but the systems and the reach of these systems has changed dramatically over the last twenty plus years to what we call business intelligence today and will call enterprise performance management in the future.

Business Intelligence

Although there is no well-accepted definition of BI, the following definition is useful for our purposes:

Business intelligence (BI) is a broad category of applications, technologies, and processes for gathering, storing, accessing, and analyzing data to help business users make better decisions.

This definition is broad. BI encompasses not only applications, but also technologies and processes. It includes not only getting data out (through tools and applications), but also getting data in (to a data mart or warehouse). It should be pointed out that some authors use the BI term to refer to getting data out, and data warehousing as getting data in. Some authors use the data warehousing term to refer to both getting data in and getting data out, much like we use business intelligence. The good news is that the differing terminology does not normally cause confusion because of the context in which the terms are used.

As depicted in Figure 2 (Watson, 2009) a generic BI environment is really not that different in structure from a DSS. The two main differences one would note is the use of data warehouses and metadata and the replacement of models with processes and applications.

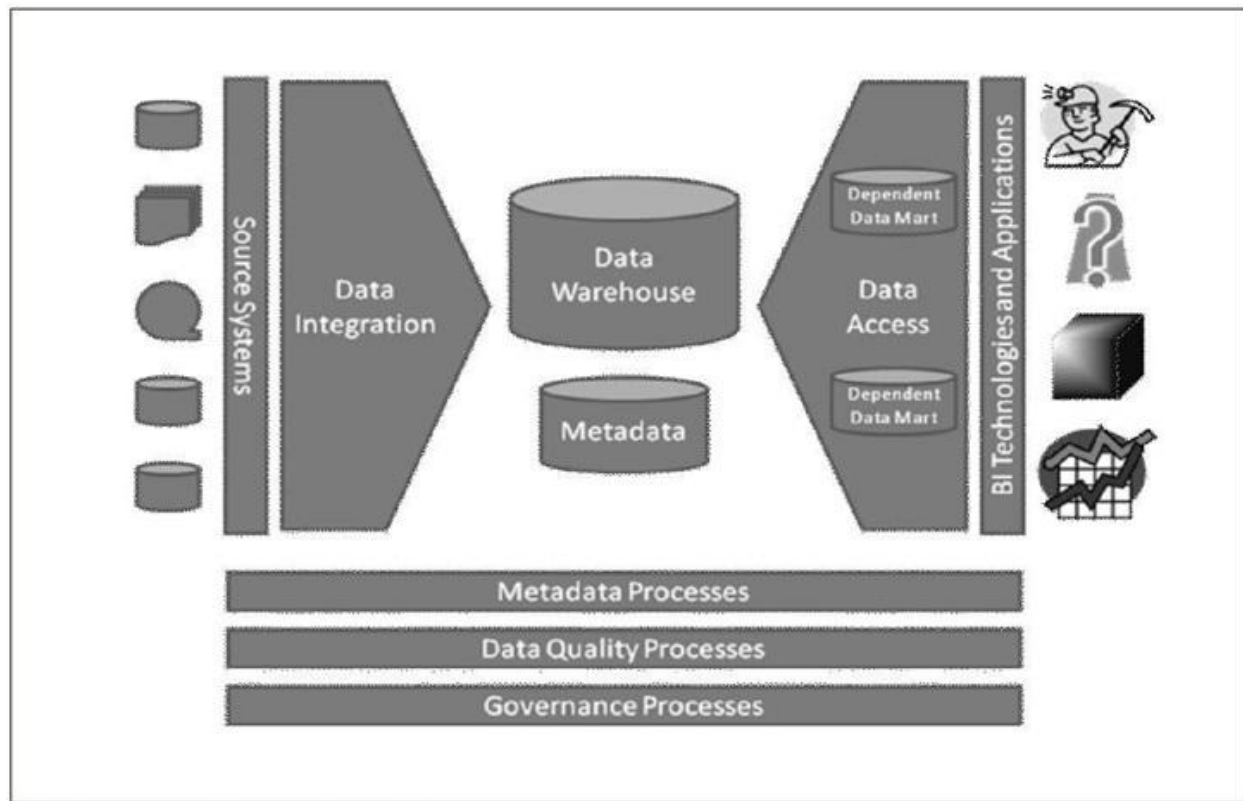


Figure 2 – A Generic BI Environment (Watson, 2009).

With this proliferation of BI users, versus the minimal DSS users of the past we find that BI users can come from almost any corner of an organization. Once the data is in a data mart or warehouse, it is ready for access by anyone. This begins the receiving of business value from BI. Anyone in the organization should be able to derive value from the BI structure. While only the IT personnel need to know how to build the infrastructure. There are a large number of potential BI users, including:

IT developers

Front line workers

Analysts

Information workers

Managers and executives

Suppliers

Customers

regulators.

The IT personnel build the infrastructure and make BI available to non-IT users. Through the use of tools or applications anyone can be a BI user. BI tools include:

SQL queries

Published reports

Drillable/OLAP reports

Excel

DSS/specific applications

EIS/dashboards/scorecards

Data visualization

Data mining/predictive analytics.

There is strong evidence of the importance of BI. Leading trade and business publications routinely describe many ways that companies are using and benefiting from BI (Davenport 2006). Each year Gartner conducts a survey and asks CIOs about their top technology initiatives. For the three years 2007–2009, BI has been at the top of the list (Gartner 2009).

IT departments often want to standardize on a single or a few decision support products in order to reduce licensing, installation, maintenance, support, and training costs. While the goal is noble, it is often impossible to meet the needs of all users with a single tool (or more likely, a product suite). Users' needs vary considerably, and business units normally have the clout and resources to acquire whatever tools they want. When companies do press to limit the number of products, there is a tendency to select a product that meets the needs of power users but are too complex for casual users, because it is normally the business power users that are on the software selection committees (Watson, 2006).



Source: MicroStrategy

Figure 3 – Sample HR Dashboard for BI.

Some tools and applications, such as drillable/OLAP reports, Excel, and dashboard/scorecards, are good at hitting the decision support —sweet spot,¹¹ in that they are easy to use and can meet the information needs of a large number of users (Eckerson 2002). Figure 3 shows a Human Resources dashboard/scorecard developed using MicroStrategy, one of the leading BI software vendors. At a glance, users can see claims-related information in graphical, tabular, summary, and detailed form. Radio buttons at the top of the screen allow the type of claim (e.g., medical, dental) to be easily changed (Watson, 2009).

Figure 4 depicts the potential range of benefits that BI generates (Watson, 2009). Some of them, like cost savings from consolidating multiple data marts into a centralized warehouse, are relatively easy to calculate. Others, such as the potential returns from supporting the accomplishment of strategic business objectives (e.g., organizational transformation), are more challenging. Some, like a departmental application, have a local impact, while others, like a company-wide dashboard/scorecard application, are global (Watson, 2009). But it is easy to imagine and see examples from systems in many organizations that are built on today's BI infrastructure.

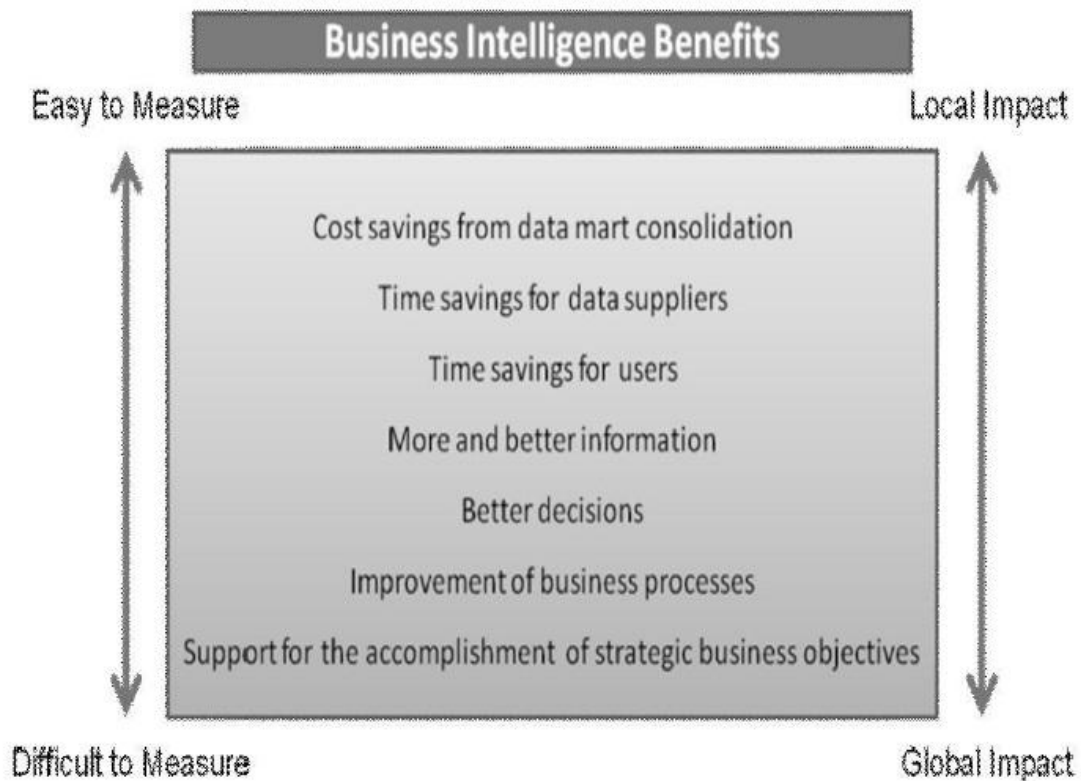


Figure 4 – Potential Benefits from BI (Watson, 2009).

Hackathorn (2004) provides a useful model for understanding the value of real time BI. Figure 5 depicts this value derived from BI over time. Value is lost as the action distance increases, which is the amount of time that passes between when an event occurs and an action based on the event is taken. Action distance has three components. Data latency is the time between when an event occurs and when data about the event is in the data warehouse. Analysis latency is the time between when the data is in the warehouse and when the event data has been analyzed and the findings are available for use. Decision latency is the time that it takes for a person, application, or process to act on the information. Data and analysis latency can be minimized through the use of real-time technologies. Reducing decision latency is more challenging because it typically depends on workers to take action (Hackathorn, 2004).

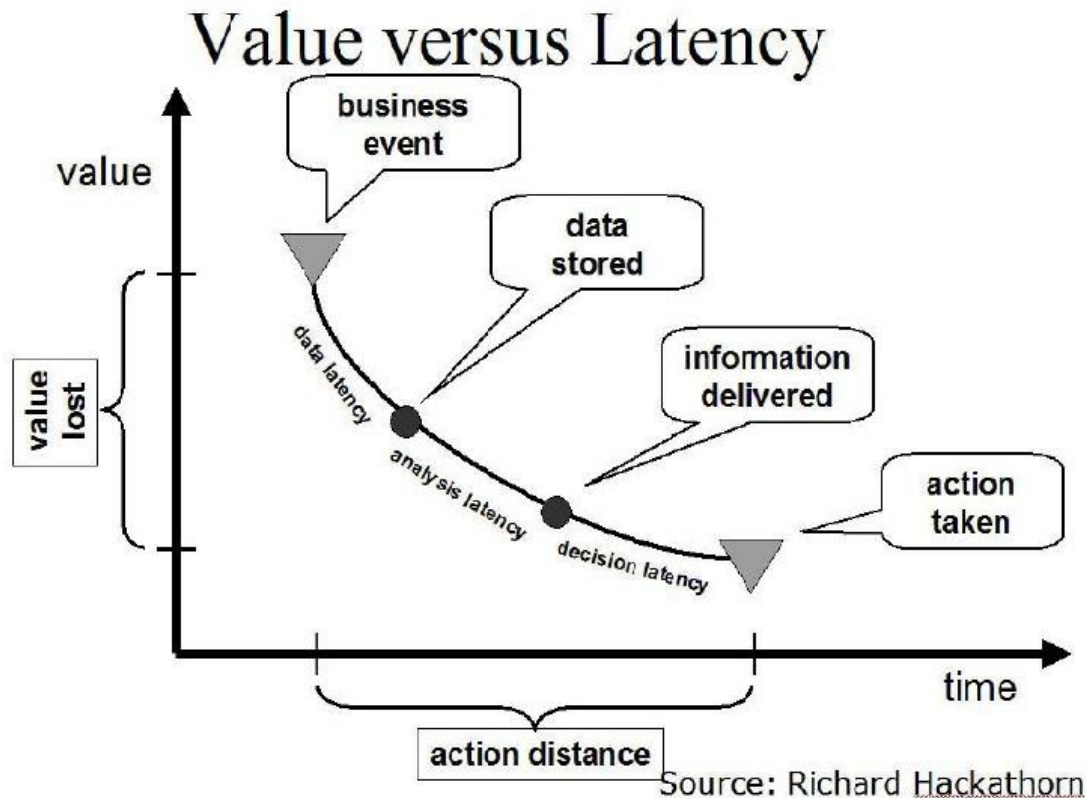


Figure 5 – The Value of Real Time BI data (Hackathorn, 2004)

Another example of the types of BI system that are prevalent in today's business world is Continental Airlines Flight Management System. In 1998, Continental made the decision to develop an enterprise data warehouse that all employees could use for quick access to key information about the business and its customers. The data warehouse provided the infrastructure for a variety of early, big wins. The initial BI applications for pricing and revenue management were followed by the integration of customer information, finance, flight information, and security. After these successes, the management team raised the bar to focus on being the favorite airline of its most profitable customers. As Continental moved ahead with this strategy, it became increasingly important for the warehouse to provide real-time, actionable information to support operational decision making and business processes. In 2001, Continental moved to real-time data warehousing (Watson et al. 2006). Figure 6 depicts the one of the screens in Continental's Flight Management Dashboard application for the Houston, Texas airport.

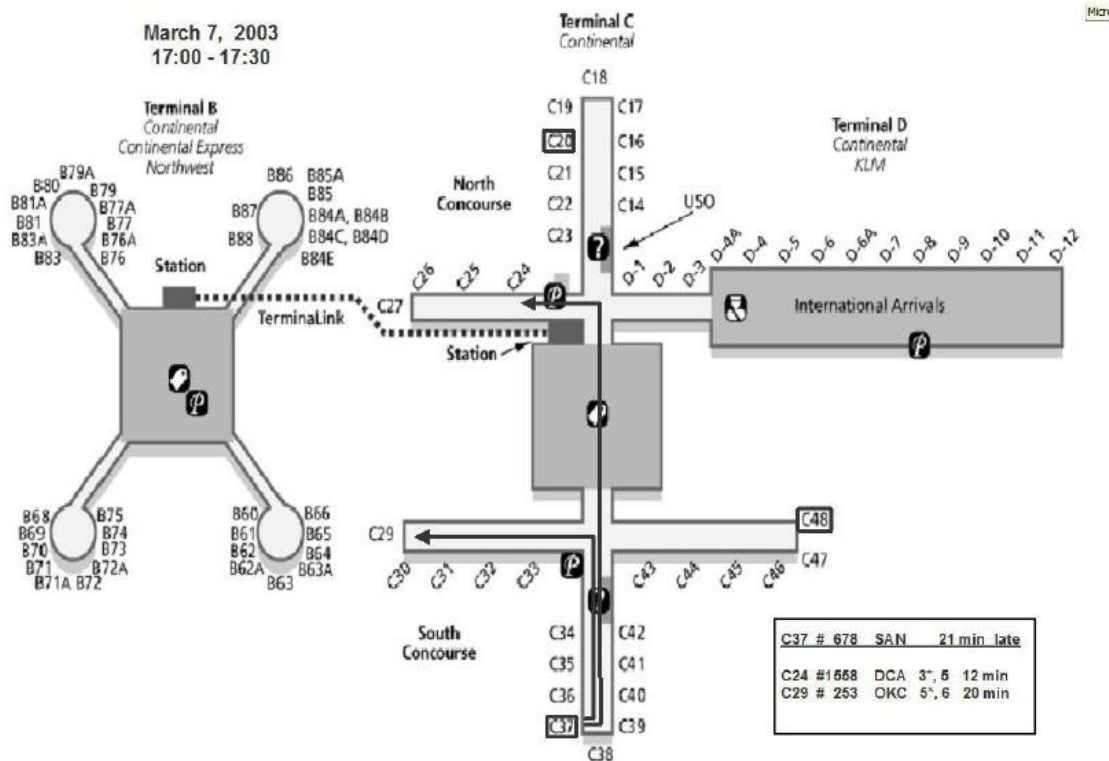


Figure 6 – Continental Airlines Flight Management Dashboard (Watson, 2006).

BI in the Curriculum

In 2009 Sircar wrote, there has been widespread investment in business intelligence/business analytics within industry because of the potential for improved managerial decision-making through mining the vast quantities of data collected by modern corporations; however, despite major recent curriculum changes in business schools, there has been very little attention given to this field. This has been true of both research and teaching and is compounded by inadequate quantitative literacy possessed by U.S. students and antipathy towards quantitative literacy among faculty (Sircar, 2009).

Sircar's paper (2009) documents the importance of business intelligence within business and the programs offered by the 50 leading business schools as depicted in Table 1. As you can see at that time in 2009 only one of the top 50 leading business schools had a minor in BI, only 7 had a course in BI, with 5 more having a course in KM. From this paper one would reach the natural conclusion that BI is being ignored in academia. We feel there are two causes that created this result. The first mistake is just a mistake in definition. BI is being taught just as it has for more than 20 years as decision support systems (DSS). Academia merely needs to start using the current term (BI) before it becomes the old term being replaced by enterprise performance

management. The second mistake is looking to the top 50 business schools as a barometer for what is being top in all the rest of the schools. Non-top 50 schools need to have closer ties to industry and the employers of their students. Therefore, the teaching schools (as most non-top 50 schools prefer to be referred to) are much more likely to have a BI program or course than the top schools who generally lag behind.

Rank	School Name	BI Course	BI Minor	BI Major	Rank	School Name	BI Course	BI Minor	BI Major
1	Pennsylvania				26	Northeastern			
2	Virginia				27	Santa Clara	X		
3	UC-Berkeley	X			28	Wisconsin			
4	Emory				29	William & Mary			
5	Michigan				30	Maryland			
6	MIT				31	Bentley	X		
7	Notre Dame	X			32	Rutgers			
8	Brigham Young				33	Babson			
9	NYU	X			34	Fordham	X*		
10	Cornell				35	Miami U.	X*	X	
11	Georgetown				36	Penn State			
12	Villanova				37	Boston U.	X		
13	Texas				38	Baylor			
14	Boston College				39	Texas Christian			
15	North Carolina				40	Rensselaer Polytech			
16	Washington U.				41	Ohio State			
17	Wake Forest				42	Minnesota	X*		
18	Indiana				43	Florida			
19	USC	X			44	Georgia Tech	X*		
20	Lehigh				45	Clemson			
21	Carnegie Mellon				46	San Diego			
22	Illinois				47	U. of Miami			
23	Richmond				48	Michigan State			
24	SMU				49	Marquette			
25	U. of Washington				50	Texas A&M	X*		

Table 1 – BI in the Top 50 Leading Business Schools (Sircar, 2009).

Figure 7 depicts the webpage for the BI curriculum at Georgia Southern University (GSU, 2012). As you can see from the website GSU, like many of the non-top 50 business programs has long recognized business needs and created a course and an emphasis in BI. GSU utilizes all the tools listed above as the typical BI tools:

SQL queries

Published reports

Drillable/OLAP reports

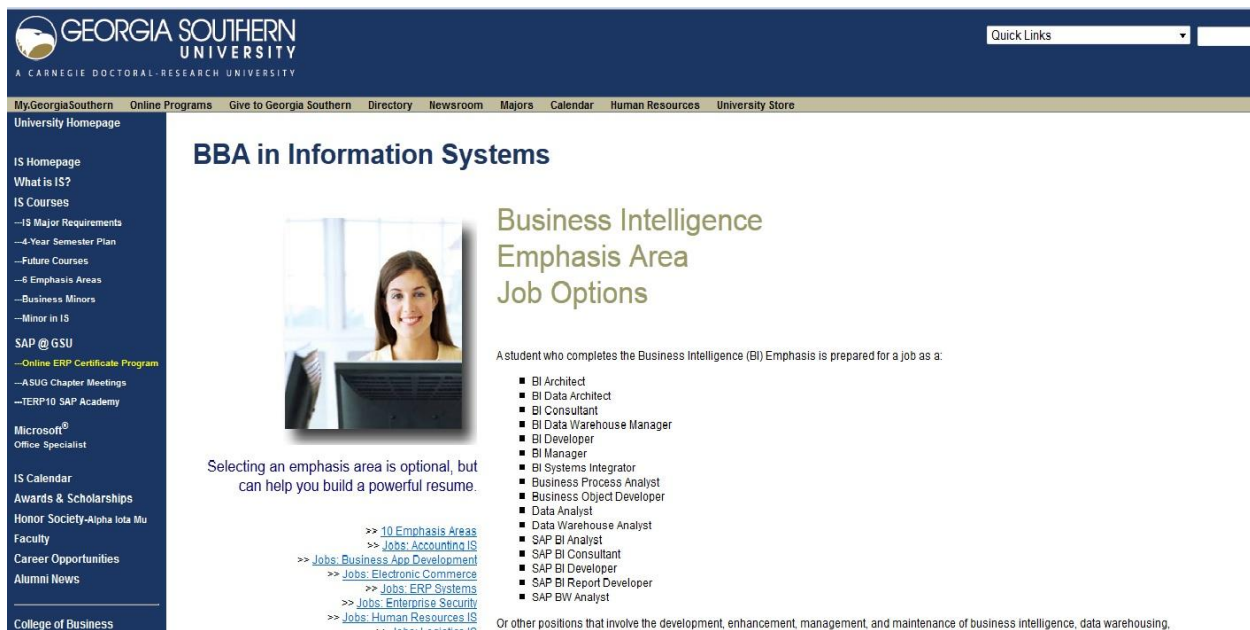
Excel

DSS/specific applications

EIS/dashboards/scorecards

Data visualization

Data mining/predictive analytics.



GEORGIA SOUTHERN UNIVERSITY
A CARNEGIE DOCTORAL-RESEARCH UNIVERSITY

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BBA in Information Systems

Business Intelligence Emphasis Area Job Options

A student who completes the Business Intelligence (BI) Emphasis is prepared for a job as a:

- BI Architect
- BI Data Architect
- BI Consultant
- BI Data Warehouse Manager
- BI Developer
- BI Manager
- BI Systems Integrator
- Business Process Analyst
- Business Object Developer
- Data Analyst
- Data Warehouse Analyst
- SAP BI Analyst
- SAP BI Consultant
- SAP BI Developer
- SAP BI Report Developer
- SAP BW Analyst

Or other positions that involve the development, enhancement, management, and maintenance of business intelligence, data warehousing,

Selecting an emphasis area is optional, but can help you build a powerful resume.

>> [10 Emphasis Areas](#)
>> [Jobs: Accounting IS](#)
>> [Jobs: Business App Development](#)
>> [Jobs: Electronic Commerce](#)
>> [Jobs: ERP Systems](#)
>> [Jobs: Enterprise Security](#)
>> [Jobs: Human Resources IS](#)
>> [Jobs: Logistics IS](#)

Figure 7 – BI Emphasis at Georgia Southern University (GSU, 2012).

You can also see that GSU lets the students know that there are a wide range of employment opportunities that comes with BI and they are not all technical or IT related:

BI Architect

BI Data Architect

BI Consultant
BI Data Warehouse Manager
BI Developer
BI Manager
BI Systems Integrator
Business Process Analyst
Business Object Developer
Data Analyst
Data Warehouse Analyst
SAP BI Analyst
SAP BI Consultant
SAP BI Developer
SAP BI Report Developer
SAP BW Analyst.

Conclusion

There has been widespread investment in business intelligence/business analytics within industry because of the potential for improved managerial decision-making through mining the vast quantities of data collected by modern corporations; however, despite major recent curriculum changes in business schools, there has been very little attention given to this field from the top universities. This has been true of both research and teaching and is compounded by inadequate quantitative literacy possessed by U.S. students and antipathy towards quantitative literacy among faculty. This paper has documented the importance of business intelligence within business and presents the curriculum in one course that exemplifies the current state of coverage in information systems programs for the business intelligence component in the US teaching orientated schools.

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A Meta-Analytic Review of the Consequences of Servant Leadership

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Abstract

We employ meta-analysis to assess the relationships between servant leadership and important organizational outcomes such as subordinate job performance, organizational citizenship behavior, job satisfaction, employee commitment and trust. Our findings generally show strong, positive relationships between servant leadership and these outcomes, though our findings are somewhat inconclusive with regard to employee commitment. Further, we show that servant leadership has stronger relationships with employee performance when both servant leadership and performance are measured at the group level. Implications of our findings and suggestions for future research are discussed.

Introduction

The concept of Servant Leadership has been around for over forty years, and it has generated much interest among both researchers and practitioners in leadership. The most recent incarnation of the leader as servant has been traced back to the writings of Robert Greenleaf who attempted to put into words exactly what a servant leader is. He wrote:

“The Servant Leader is servant first...It begins with the natural feeling that one wants to serve, to serve first. Then conscious choice brings one to aspire to lead...The best test, and difficult to administer is this: Do those served grow as persons? Do they, while being served, become healthier, wiser, freer, more autonomous, and more likely themselves to become servants? And, what is the effect on the least privileged of society? Will they benefit, or at least not further be harmed?” (Greenleaf, 1977)

This quote by Greenleaf is illustrative of early research into servant leadership in that the concept was often defined in terms of its antecedents (i.e., someone “aspires to lead”) and its consequences (i.e., are employees “healthier, wiser, freer, more autonomous and more likely to become servants themselves”), while not adequately defining specific servant leader behaviors themselves. Drawing from these early conceptualizations, many researchers undertook an effort to identify what servant leaders actually do. The results of these efforts led to many different classifications of key servant leader characteristics. A recent review of the servant leadership research by Dirk van Dierendonck (2011) examines this growing conceptual and empirical progress in Servant Leadership research. In his review, Van Dierendonck (2011) notes that previous researchers have identified 44 servant leadership characteristics that are contained in the various servant leadership conceptualizations. Van Dierendonck (2011) separated the antecedents and consequences from servant leader behaviors, and, while also considering

empirical findings, he identified and described six behavioral dimensions of servant leaders that seemed to fully capture the behavioral domain of the servant leader.

First, Van Dierendonck (2011) describes a servant leader as someone who *empowers and develops people*. The servant leader believes in the intrinsic worth of every individual and seeks to enable followers in an effort to generate in them a strong sense of personal power. To accomplish this, servant leaders engage in much information sharing with followers, and they try to coach them toward innovative performance. Second, servant leaders express *humility*. They put the success of others ahead of themselves; they try to facilitate the performance of others first and foremost. Part of expressing humility also includes putting one's own accomplishments in the background and being able to accept that others have expertise from which the servant leader might benefit. Third, the servant leader demonstrates *authenticity* in both word and deed.

Specifically, servant leaders express themselves in ways that are truly consistent with their inner thoughts, beliefs and feelings; they are honest and are true to their word. Fourth, servant leaders strive for *interpersonal acceptance* of others. They try to deeply experience where others are coming from and do not hold grudges; they let go of the perceived wrongdoings of others. In doing this, they seek to create an atmosphere of trust and acceptance, where everyone feels free to make mistakes and is simultaneously secure in the knowledge that they are respected and accepted. Fifth, (and similar to other leadership approaches), servant leaders are intent on *providing direction* to followers. That is, they let followers know what is expected of them. However, in providing this direction, the servant leader seeks to tailor the job to suit the unique needs and abilities of followers, while also taking into account their input. Finally, the servant leader engages in *stewardship*. Servant leaders are willing to assume the responsibility for the whole organization in their relations with various stakeholders. They emphasize service rather than control or maximizing their own self-interest. They try to be good role models for others; perhaps sparking a desire in others to also serve and/or act in the common interest of others as well (Van Dierendonck, 2011).

Defined in this way, servant leadership is somewhat similar to other forms of leadership. For instance, transformational leadership is also thought to contain leader behaviors that emphasize the well-being of followers through consideration, intellectual stimulation and individualized attention. However, transformational leaders ultimately emphasize these things for the betterment of the organization, while the servant leader's focus is on the growth and self-actualization of the followers themselves (Van Dierendonck, 2011). Further, the transformational leader is not necessarily authentic in word and deed, nor is the transformational leader engaging in humility or in interpersonal acceptance (Van Dierendonck, 2011). Thus, while there is some conceptual overlap with transformational leadership, there are some major differences as well. Similarly, other leadership approaches such as authentic, spiritual and ethical leadership show some conceptual overlap with servant leadership. However, in each case, these approaches only tap into 1-2 dimensions of servant leadership. Thus, while they are partially similar to some aspects of servant leadership, they are deficient in explaining the full domain of it (Van Dierendonck, 2011).

Overall, our study seeks to test the effects of servant leadership, as defined above, on important organizational outcomes. In particular, we are interested in exploring the effect of servant leadership on subordinate task performance, subordinate organizational citizenship behavior (OCB), and subordinate job satisfaction, commitment and trust.

Servant Leadership and Subordinate Job Performance

While much has been written about servant leadership, an important goal of any effective leadership approach is increased positive results from subordinates and the resulting effect on organizational returns. Servant leadership holds out the promise of facilitating employee job performance because the servant leader creates a positive work environment by engaging in activities such as providing employees with direction in helping them achieve their goals, effectively dealing with the multiple personalities within a group, providing recognition for subordinate achievements and creating a unified commitment for team members to rally around (Van Dierendonck, 2011). More specifically, the servant leadership dimension of empowering was recently shown to be a key factor in leading to effective team performance (Burke, Stagl, Klein, Goodwin, Salas, & Halpin, 2006). Further, a review of the empirical evidence also suggests that servant leadership is positively related to team performance. In a series of studies conducted by Irving and his colleagues, they consistently show a strong correlation between servant leadership and team effectiveness in the nonprofit sector. In one study, Irving (2004) tested the effects of servant leadership on team effectiveness in a sample of over 200 teams and found correlations between servant leadership and team effectiveness between $r=.56$, ($p<.05$) and $r=.76$, ($p<.05$). Similarly, Irving and Longbotham (2007) found a link between servant leadership and team effectiveness ($r=.38$, $p<.05$) in an international nonprofit organization. Consistent with these results, Hu and Liden (2011) recently showed that the positive relationships between both goal and process clarity and team effectiveness were stronger in the presence of servant leadership. Based on the servant leader's (likely) positive effect on the environment in which a team must function, as well as the observed, strong empirical links between servant leadership and team effectiveness, we propose:

Hypothesis 1: Servant Leadership is positively related to subordinate performance.

It is also likely that servant leadership will encourage more employee citizenship behaviors (OCB) from subordinates for two reasons. First, the servant leader's focus is on serving others and helping them fulfill their goals. In doing this, the servant leader serves as a role model for employees to emulate with regard to performing cooperative, helpful behaviors that make up much of the behavioral domain of OCB. Second, Van Dierendonck (2011) suggests that servant leadership serves to encourage a higher level of moral reasoning in followers. That is, the universal principles often applied by the servant leader helps followers see beyond their narrow self-interest and awakens in them a greater appreciation for the interests of others as well. Several empirical studies have shown an effect of servant leadership on OCB. For instance, in a sample of seven institutions in Kenya, Walumbwa, Hartnell, and Oke (2010) found a strong correlation between servant leadership and OCB ($r=.45$, $p<.05$). Similarly, a study by Jaramillo, Grisaffe, Chonko, and Roberts (2009) showed a correlation of $r=.15$, $p<.05$

between servant leadership and at least one component of OCB. Thus, because servant leader behavior is logically expected to increase subordinate OCB and because the available empirical evidence shows a positive relationship exists between the two, we propose:

Hypothesis 2: Servant Leadership is positively related to subordinate OCB.

Servant Leadership and Subordinate Attitudes

As noted in the earlier quote by Greenleaf, from the very beginning, researchers have always believed that the most immediate beneficial outcome of servant leadership is its facilitation of positive attitudes among employees (i.e., those served should be “healthier, wiser and free”). Servant leadership is explicitly focused on enhancing follower well-being. The servant leader tailors jobs to fit the specific needs of followers, encourages their growth and self-actualization and puts his own accomplishments into the background in deference to those made by his followers. Each of these servant leader behaviors is consistent with improving employee job satisfaction and employee commitment. Further, servant leadership is also likely to be positively related to employee trust. As mentioned earlier, servant leaders are absolutely honest and transparent in their interactions with others. In both their words and deeds, they accurately express their innermost thoughts, feelings, beliefs and intentions, sometimes to the point of leaving themselves revealed and vulnerable in relation to their employees. Given that definitions of trust include one’s belief in the honesty of another, as well as the degree to which one might allow themselves to be vulnerable toward another, etc., Van Dierendonck (2011) argues that there is quite a bit of definitional overlap between servant leadership and trust. In fact, he argues, there is so much potentially shared variance between the two constructs that “one could argue whether trust in management is synonymous with servant leadership” (Van Dierendonck, 2011). Taken together, one might logically expect that servant leadership would be strongly related to positive employee attitudes such as job satisfaction, commitment and trust.

Empirical findings on the effects of servant leadership on employee attitudes have also been generally positive. For instance, Drury (2004) reports a correlation of $r=.63$ between servant leadership and job satisfaction, with Jaramillo and colleagues (2009) reporting similar results ($r=.52$, $p<.05$). Further, as Van Dierendonck (2011) points out, the positive relationship between servant leadership and employee commitment has been observed many times both in the United States (Jaramillo, et al., 2009; West & Bocarnea, 2008) and overseas (Dannhauser & Boshoff, 2007; West & Bocarnea, 2008). A notable exception to these positive findings was reported by Drury (2004), who found a strong, negative correlation ($r=-.22$, $p<.05$) between servant leadership and employee commitment. She speculated that this finding might reflect the servant leader’s success in empowering and developing employees to the point that the employees come to believe that their skills might be better used outside of the organization and/or that they might become more committed to their particular line of work rather than to the organization itself. In addition, several empirical studies (i.e., Dannhauser & Boshoff, 2006; Reinke, 2003) show very strong correlations ($r=.70+$) between servant leadership and employee trust in a variety of organizational contexts. Overall, based on a wealth of logical and empirical support on the effect of servant leadership on employee attitudes, we propose the following:

Hypothesis 3: Servant Leadership is positively related to follower job satisfaction.

Hypothesis 4: Servant Leadership is positively related to follower commitment.

Hypothesis 5: Servant Leadership is positively related to follower trust.

Potential Moderators

There are several possible moderators of the servant leadership-follower outcome linkages described above. For example, there are multiple levels of analysis to be considered when evaluating the research on servant leadership. The whole groups model of leader-subordinate interactions suggests that leaders have similar relationships with individuals who are members of the same group (Dansereau, Alutto, & Yammarino, 1984). Alternatively, leaders may display a different style toward each individual within a group (Yammarino & Bass, 1990). If the leader exhibits varying levels of servant leadership to individual followers, the extent of effective leadership derived from servant leadership may be different between individuals and groups (Klein & House, 1995). Thus, the effects of servant leadership on subordinates might be different depending on whether servant leadership is measured at the individual level or as an organization-wide phenomenon. Similar differences might hold with regard to performance measures. That is, the effect of servant leadership might be different depending on whether job performance (or OCBs) is measured at the level of the individual or at the group level.

Other possible moderators to the overall relationships between servant leadership and follower outcomes have been proposed as well. In addition to exploring the level of analysis issue noted above, we also explored the possibility that culture, gender of the sample, and/or type of institution (business or nonprofit) might strengthen or weaken the overall relationship between servant leadership and the various outcomes of interest. Further, we were also interested in exploring possible methodological moderators that might exist. Thus, we explored the possibility that differences in the overall effects of servant leadership might depend on whether or not the study was published, the specific measure of servant leadership used, and whether or not the research design was one in which the independent and dependent variables were gathered from the same source at the same time. While we have no expectations regarding the direction or magnitude of any of these possible moderators, we include these variables in our study to examine any possible effects they may have.

METHOD

Data

The meta-analysis methods outlined by Hunter and Schmidt (1990) were used to test the hypotheses under investigation. We identified 25 empirical studies that collectively yielded a total of 41 estimates of the servant leadership-outcomes linkages of interest. We followed a

systematic approach in searching for primary studies used in this analysis. First, we searched through published literature reviews on the topic, and we conducted a computerized search through all relevant databases using several combinations of keywords. Examples of keywords include: servant leadership, authentic leadership, ethical leadership, job performance, task performance, organizational citizenship behavior, prosocial behavior, contextual performance, effort, satisfaction, commitment, organizational commitment, trust, morale, etc. The computerized abstracts yielded hundreds of citations which were independently reviewed and assessed for their suitability for inclusion into this analysis. Finally, to ensure that we had not overlooked any relevant research on our linkages of interest, we conducted a manual search through several key journals, such as the *International Journal of Servant Leadership*, from its inception until the present time. Much of the literature that we uncovered did not examine empirically the linkages of interest and was therefore not able to be included in this analysis. In sum, our literature search resulted in 41 samples that provided sufficient information to obtain effect size estimates of the linkages of interest.

Measures

Operational definitions of the variables used in this study are broad classifications of the constructs as they are used in the literature. For instance, all measures concerning employee performance are included in our examinations of employee performance. Similarly, measures of job satisfaction, organizational commitment, trust, and servant leadership are used in our analysis if they are defined as such by the primary study authors. We chose a broad conceptualization of the constructs under examination in an effort to include as many primary studies on the topic of interest as possible. Product-moment correlations between servant leadership and the various outcome measures were usually presented in most primary studies, though in some cases, the correlation had to be computed. Formulae necessary for transforming reported data into correlations by converting a t-test, an exact p-value, an F-value, or other statistics are found in Hunter and Schmidt (1990). In instances where servant leadership was examined under multiple experimental conditions (i.e., Irving, 1994) and/or was correlated with multiple outcome measures (i.e., Drury, 2004), we used each correlation only if the underlying samples were deemed to be independent. For example, multiple samples from the same study were not used if the same subject participated in multiple experimental conditions.

All of the variables under investigation in this study were coded by the first author. Our dataset was coded as follows: Servant Leadership measure (1= refers to direct supervisor only, 0=servant leadership throughout the organization), Job performance (1=individual level, 0=group level), OCB (1=individual level, 0=group level), Satisfaction (1=with the job, 0=with the leader only), Commitment (1=to the supervisor only, 0=to the organization), and Trust (1=in supervisor only, 0=other). We also coded for characteristics of the study (1=published, 0=unpublished) the research design (1=used single source method, 0=other), the sample type (1=business, 0=other), the sample location (1=US, 0=other) and the gender composition of the sample (1=mostly male, 0=mostly female, 2=no bias/cannot be determined). Servant leadership and dependent variable scale reliabilities were also entered into our database. In instances where a scale reliability was not reported, a reliability score of 1 was entered to ensure that we do not overcorrect correlations

for measurement unreliability. Finally, we noted the size of each sample and the effect size (correlation) between servant leadership and the relevant outcome variable for each primary study.

As mentioned, in this study, we code for several possible moderators of the servant leadership-subordinate outcome relationships. However, it is often the case that sampling error, rather than a substantive moderator (i.e., level of analysis) explains the observed variability across studies. To determine if a search for moderators is merited, Hunter and Schmidt (1990) suggest that when 75% or more of the variance across studies is explained by sampling error, measurement unreliability, and range differences, then the likelihood of the presence of moderators is negligible. It should be noted, however, that the 75% rule was proposed for meta-analyses that corrected for three sources of artifactual variance whereas we corrected only for sampling error and measurement error. Although range restriction is a possible source of artifactual variance in our study, it was not possible to correct for this source of error because of a lack of data on, for instance, the poorer managers who may have been excluded from management positions as a result of their subpar performance. Likewise, since so few studies reported scale ranges with their means and standard deviations, corrections for scale range restriction of measurement were not possible. Thus, although we note that we only correct for 2 of three possible sources of artifactual variance, we will nonetheless conclude that a search for moderator variables is unwarranted if we find that at least 75% of the variance across studies is attributable to sampling error and measurement unreliability.

Analysis

The meta-analyses we report here were conducted following the guidelines outlined by Hunter and his colleagues (Hunter & Schmidt, 1990; Hunter, Schmidt, & Jackson 1982). First, we compiled information on servant leadership and subordinate outcomes as in a qualitative review. We then computed a sample-size weighted mean correlation on the samples contained in the analysis. This correlation was then tested to determine if it was statistically different from zero (Hunter and Schmidt, 1990). Next, where applicable, each correlation was corrected for attenuation using the reliability estimates that were provided in the primary studies. Then, the estimated true correlation between servant leadership and effectiveness was calculated by summing the corrected correlations multiplied by sample size, and dividing the total by the sum of all subjects across samples. The estimated population standard deviation was then computed using the formulae presented by Hunter and Schmidt (1990). Next, the percentage of variance across studies attributable to artifacts of sampling error and measurement unreliability was calculated. Finally, we tested the sufficiency of sampling error and measurement error as an explanation of the observed variation across studies in our database. As mentioned, a search for moderators was unwarranted if 75% or more of the variation across observed coefficients could be explained by sampling error and measurement error.

Results

Servant Leadership and Subordinate Job Performance

A total of 15 different meta-analyses were undertaken to examine the five hypothesized main effects and the potential moderating factors. Table 1 presents an overview of the findings with regard to employee performance, while Table 2 presents an overview of our findings with regard to subordinate attitudes. To test Hypothesis 1, we conducted a meta-analysis on the 13 samples with a total sample size of $N=3937$ that examined the relationship between servant leadership and subordinate job performance. We found an uncorrected sample-size weighted mean correlation of $r=.40$ ($p<.05$). After correcting for attenuation due to measurement unreliability, the correlation is $r=.43$. However, because sampling error (6.4%) and measurement unreliability (1.3%) accounted for only 7.7% of the variability across samples, a moderator analysis was undertaken.

We first looked to see if the effect of servant leadership on job performance depended on whether the measure of job performance was at the individual ($k=3$) or group ($k=10$) level. The uncorrected correlations of these two analyses were $r=.19$ (individual job performance) and $r=.46$ (group performance) with corrected correlations of $r=.20$ and $r=.49$, respectively. At the individual level, sampling error and measurement unreliability together accounted for almost 65% of the variability across studies. This suggests that there may be a substantive moderator to this relationship, though our small sample size here precluded any further examination of this relationship. At the group level, sampling error (6.76%) and measurement unreliability (2.18%) together accounted for only 8.94% of the variability across samples, so we explored the servant leadership-group performance relationship further to search for a possible moderator of this relationship.

We divided the 10 studies that examined this relationship into two groups, those that measured the servant leadership of the direct supervisor only ($k=5$) and those that measured servant leadership more broadly to include more levels of management ($k=5$). The 5 samples that used a measure of direct supervisor servant leadership had an $n=1455$ and a weighted mean correlation of $r=.32$ while the 5 samples that used a broader measure of servant leadership ($n=1648$) had a weighted mean correlation of $r=.57$. Only 10.28% of the variability across samples in the direct supervisor group was due to sampling error and measurement unreliability (suggesting the possibility of a substantive moderator), while 84.68% of the variability across samples in the group that measured servant leadership more broadly was attributable to sampling error and measurement error. In the latter group, this suggests that no further search for moderators is warranted. Overall, Hypothesis 1 was supported, especially when controlling for level of analysis in both servant leadership (direct supervisor vs. overall organization) and job performance (individual vs. group performance).

Servant Leadership and Subordinate OCB

A sixth meta-analysis was conducted, this time on the relationship between servant leadership and subordinate organizational citizenship behavior (OCB). In this analysis, $k=6$ correlations were combined in the omnibus test. The uncorrected, sample-size weighted correlation for this relationship was $r=.37$ ($p<.05$). After correcting for attenuation, the correlation was $r=.40$. Since the variability explained by statistical artifacts accounted for only

10.23% of the observed variability across samples, a moderator analysis was conducted. The 6 samples included in the omnibus test were divided into two groups: those that measured OCB at the individual employee level ($k=3$) and those that measured team or group-level OCB ($k=3$). The uncorrected mean correlations for these analyses revealed a correlation of $r=.34$ between servant leadership and individual performance and $r=.49$ between servant leadership and group level performance. In both cases, the variability attributable to sampling error and measurement error were trivial, so we considered another moderator to the overall relationship. We again broke the 6 studies down into 2 groups: those that had a mostly female sample ($k=3$) and those that had a mostly male sample ($k=3$). The uncorrected mean correlations for these analyses revealed a correlation of $r=.28$ for the mostly female sample and $r=.44$ for the mostly male sample. In the latter group, we found that 74.5% of the variability across samples was attributable to sampling error and measurement unreliability; thus, a further moderator search in this instance is deemed unwarranted. Overall, our Hypothesis 2, which states that servant leadership would be positively related to subordinate OCB was supported, at least when controlling for the gender of the sample.

Servant Leadership and Subordinate Job Satisfaction, Commitment and Trust

A third omnibus meta-analysis was conducted on the servant leadership-subordinate job satisfaction relationship using $k=13$ samples with a sample size of $N=3000$. The uncorrected sample-size weighted correlation was $r=.55$ ($p<.05$). After correcting for attenuation, the correlation was $r=.57$. Since only 30.57% of the variability across samples was explained by statistical artifacts, a search for a moderator variable was undertaken. As in previous analyses, we divided these 13 studies into 2 groups: those that measured servant leadership at the direct supervisor level only ($k=5$, $N=1678$) and those that measured servant leadership to include other levels of management ($k=6$, $N=1242$). Two studies were excluded from this analysis because details on the focus of the measure of servant leadership were not available or were not able to be determined satisfactorily. For the direct supervisor group, the uncorrected, sample-size weighted correlation was $r=.55$ while the correlation in the sample of those studies that used a broader measure was $r=.54$. In the latter group, 96.85% of the variance across studies was attributable to sampling error (84.25%) and measurement error (12.60%). Thus, a search for further moderators to this relationship is unwarranted. These findings support our Hypothesis 4.

To test Hypotheses 5 and 6, two final meta-analyses were conducted. We identified $k=7$ samples that examined the relationship between servant leadership and employee commitment with an overall sample size of $N=2296$. The uncorrected sample-size weighted mean correlation for this relationship was $r=.35$ ($p<.05$). After correcting for attenuation due to measurement unreliability, the correlation was $r=.39$. However, the 95% confidence interval in this case was quite wide and included zero. Though sampling error (3.91%) and measurement error (1.54%) accounted for only 4.45% of the variability across studies, we could find no way to break these 7 samples down into meaningful subgroups that could be analyzed for a potential moderator. Though it appears there is a moderator to the servant leadership-commitment relationship, it is not a variable that we coded for in this study.

Finally, the studies ($k=5$, $N=2296$) that examined servant leadership and subordinate trust were examined. In this case, the uncorrected sample-size weighted mean correlation for this relationship was $r=.73$ ($p<.05$). Although the residual standard deviation was less than one-quarter of the estimated population standard deviation (another test for group homogeneity), only 11.78% of the variance across studies was accounted for by statistical artifacts. In addition, because of the small sample size in this analysis, we were unable to conduct a search for further moderators of this relationship. Overall, our results partially support Hypothesis 5, which proposed that servant leadership is positively related to subordinate trust.

Discussion

Scholars have examined the concept of servant leadership for over forty years now. However, though we identified hundreds of studies on the topic, empirical research has been somewhat limited and has only appeared relatively recently. Our research examined this empirical evidence, and we believe that our findings establish that servant leadership has generally positive effects on subordinate outcomes. We also considered some important issues that should help guide future research in the area.

In the analysis of servant leadership on employee job performance, perhaps our most interesting finding is that servant leadership is more instrumental in leading to overall group performance rather than a given employee's individual performance. While servant leadership is correlated with individual job performance, the effect size more than doubles when examined at the group level. In addition, the effect of servant leadership on group performance is even greater when servant leadership pervades the entire organization, rather than being exhibited by a single supervisor. When controlling for level of analysis in these ways, we found that almost 85% of the variance across studies was attributable to statistical artifacts. At least two explanations exist for this finding. First, since all of the correlations were fairly close to the corrected effect size of $r=.59$, one might be inclined to believe that this is in fact an estimate of the true population effect size. Though the sample size in this relationship was somewhat small ($k=5$, $N=1648$) and would therefore limit our ability to make overarching claims, these five do converge on this estimate of the effect size. On the other hand, all but one of these studies were conducted in a similar fashion in the sense that in each case both the measure of servant leadership and the measure of team effectiveness was collected via survey from the same source at the same time. It is possible that the consistency of these findings is related more to this methodological approach, rather than being representative of a more substantive moderator of the relationship between servant leadership and group effectiveness. Because so few studies in the servant leadership literature used alternative designs, we ultimately could not test for this possibility.

We also found that servant leadership is positively related to subordinate OCB. This is consistent with the view expressed by Van Dierendonck (2011) that servant leadership behavior might make subordinates more ethically aware and more in tune to acting for the benefit of others. While prior theory and empirical findings are consistent with our overall findings on OCB, we are unaware of any prior evidence that would shed light on our findings that revealed

servant leadership leading to OCB more so for men than for women. Specifically, our results showed that the relationship between servant leadership and OCB was much higher for men ($r=.49$) than it was for women ($r=.28$). Further, our results suggested that the estimate for the mostly male subgroup converged on the “true” population effect size, with 75% of the variability across the samples being attributable to statistical artifacts. If it is true that servant leaders help to make their followers more ethically aware and thus more likely to engage in OCB, our findings are particularly surprising in light of prior research that showed that women are less likely to commit ethical violations than are men (Bjerregaard & Lord, 2004) and that teams of women score significantly higher on tests of moral orientation than do men (Baker & Hunt, 2003). Perhaps men respond more to servant leadership (at least in terms of exhibiting more OCB) because the servant leader’s focus on service, honesty and interpersonal acceptance represents such a dramatic departure from the way men prototypically perceive leaders and think day-to-day about ethics and morality. This cognitive disconnect may serve as an additional catalyst for citizenship behavior performance from men. Future researchers might want to more closely examine gender differences in the way subordinates react to servant leadership.

Our findings also show that servant leadership is strongly related to subordinate job satisfaction and trust. In both instances, correlations were strongly positive. This is not really surprising given that the servant leader’s focus is primarily on enhancing the psychological well-being of others. Our findings with regard to commitment, however, were inconclusive. While we found that the effect of servant leadership on commitment was positive overall, there seems to be a moderator to this relationship that was not examined in our study. While all of the correlations in our database were positive for both job satisfaction and trust, at least one correlation between servant leadership and commitment was significantly negative (Drury, 2004). Future research should examine potential moderators to this relationship.

Finally, after reviewing all of the literature on servant leadership from the past 40+ years, we offer several additional recommendations that might help guide future research in this area. First, we believe that more research using multiple methods should be conducted. The vast majority of research that examines the effect of servant leadership on subordinate outcomes is conducted via survey research that gathers measures of servant leadership and outcomes from the same source at the same time. While there are some exceptions (i.e., Hu & Liden, 2011; Walumbwa, Hartnell & Oke, 2010), they were few in number. This raises the possibility that the effect sizes shown in our study might be somewhat higher (due to common method variance) than they might otherwise would have been had multiple methods been employed. Second, most all of the literature on servant leadership was conducted in the field. It would be interesting to see what effects the servant leadership style would have on subordinate performance and attitudes under controlled, laboratory conditions similar to those experiments conducted to test charismatic leadership (Howell & Frost, 1990; Kirkpatrick & Locke, 1996). Such tests might shed some light on whether or not servant leadership can be effectively taught to others and whether the effects of servant leadership on organizational outcomes are long-lasting and substantive. Finally, and perhaps most significantly, our results seem to indicate that servant leadership is a group level phenomenon, both in its measurement and in its effects on subordinate performance. Servant leaders do things like taking responsibility for the organization in dealings

with various stakeholders, modeling ethical behavior so that others might emulate them and in turn serve others, accepting other people for who they are and seeking ways to fulfill and empower others. All of these things are probably much more powerful and will probably spread much more widely throughout the organization if top managers are seen engaging in these behaviors. Our results showed that servant leadership throughout the organization is a much better predictor of employee job performance than is the servant leadership of a given leader. If organizations would like to benefit from the profound effects of this leadership style, we recommend that they start at the top and let the effects of this approach cascade down throughout all levels of the organization.

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Appendix

Table 1: Effects of Servant Leadership on Job Performance and OCB

Category of Analysis	k	N	Weighted Mean r	SD	SD	SD (res)< ¼ effect size?	Var. Attributable to Sampling Error (ALL)	CI:	CI:
				(r)	(res)			Lower	Higher
Job Performance	13	3937	0.40	0.19	0.18	No	6.40 (7.70)	0.04	0.76
Individual	3	834	0.19	0.07	0.04	Yes	62.80 (64.50)	0.10	0.28
Group	10	3103	0.46	0.17	0.17	No	6.76 (8.94)	0.13	0.78
Direct Supervisor	5	1455	0.32	0.17	0.16	No	9.40 (10.28)	0.01	0.64
Overall Organization	5	1648	0.57	0.05	0.03	Yes	54.45 (84.68)	0.50	0.64
OCB	6	1997	0.37	0.15	0.14	No	9.85 (10.23)	0.09	0.65
Individual	3	1566	0.34	0.13	0.13	No	8.31 (8.52)	0.09	0.59
Group	3	431	0.49	0.15	0.14	No	17.50 (18.10)	0.21	0.76
Female	3	861	0.28	0.19	0.18	No	8.40 (8.58)	-0.07	0.63
Male	3	1136	0.44	0.05	0.03	Yes	72.23 (74.50)	0.39	0.49

Table 2: Effects of Servant Leadership on Subordinate Job Satisfaction, Trust and Commitment

Category of Analysis	k	N	Weighted Mean r	SD	SD	SD (res)< ¼ effect size?	Var. Attributable to Sampling Error (ALL)	CI:	CI:
				(r)	(res)			Lower	Higher
Job Satisfaction	13	3000	0.55	0.09	0.08	Yes	26.46 (30.57)	0.39	0.70
Direct Supervisor	5	1678	0.55	0.11	0.10	Yes	12.32 (14.18)	0.35	0.75
Overall Organization	6	1242	0.54	0.05	0.02	Yes	84.25 (96.85)	0.49	0.58
Trust	5	1068	0.73	0.13	0.12	Yes	5.93 (11.78)	0.48	0.98
Commitment	7	2296	0.35	0.24	0.24	No	3.91 (4.45)	-0.11	0.82

Online Stockbrokers: A Comparison of Fees and Services

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Abstract

Stock traders using online discount stockbrokers trade excessively and therefore should minimize the fees they are charged. However, with many different online stockbrokers available who each have a unique set of fees for services, tradeoffs may exist in the fees for various services such that a low fee for one service may correspond to a high fee for another service. This study looks for such tradeoffs in the service fees from online stockbrokers to help traders select an online stockbroker. Contrary to the theory of perfect competition, data from online stockbroker websites do not reveal tradeoffs in service fees, and stock traders should be able to minimize fees simply by choosing an online stockbroker with a low stock trading fee.

Introduction

The online stock trader has nearly thirty different online stockbrokers to choose from. These online stockbrokers charge different fees for essentially the same services, and sometimes do not offer a particular service. In addition, with so many online stockbrokers competing for online stock traders, an online stockbroker with a low fee for one service may also have a high fee for another service. Therefore online stock traders face the problem of deciding which online stockbroker to use, and need to understanding the possible tradeoffs that may exist in levels of fees offered and services provided. If the problem of choosing an online broker is not solved in an informed manner, the online stock trader may choose an online broker that results in higher fees paid or the lack of adequate services. The hypothesis in this study is that online brokers set fees and offer services in a manner that results in tradeoffs such that higher fees for one service will correspond to lower fees for another service.

Literature

The forerunner of the online stockbroker was the discount broker that came into existence shortly after the Securities and Exchange Commission eliminated fixed commission rates in 1975. Schaefer (1983) shows that by 1980, discount brokers became an established part of the securities industry. Odean (1999) finds that investors using discount brokers engage in excessive trading and herding behavior by buying stock after significant price appreciation, and selling after a stock's price levels off, which results in buying stocks that underperform those they sell. Barber and Odean (2001) find that both men and women trade excessively using discount brokers, but that men trade 45 percent more than women, and the excessive trading reduces returns for men by about three percentage points, and for women about two percentage points. Dorn, Dorn, and Sengmueller (2008) suggest that the trading activity of German discount broker

investors is primarily driven by an entertainment motive, since the costs of their trading do not justify their returns. However, Ivkovic and Weisbenner (2005) find that the average discount broker investor generates an additional annual return from stock holdings of 3.2 percent from buying stock in local companies relative to nonlocal company stock due to an informational advantage. With the development and widespread use of the internet, discount brokers became known as online stockbrokers.

Hypothesis

The hypothesis explored in this study is consistent with the theory of perfect competition. The market for online stockbrokers seems to fit into this category of market activity. First, many firms exist in the market, none of which has sales much larger than the others [document]. Second, online stockbrokers should be able to enter and exit the market fairly easily. This should be the case for online stockbrokers because technology rather than brick-and-mortar is the dominant capital input. Third, each online stockbroker offers services that are fairly homogenous. Homogeneity was confirmed by gathering information on fees and services from all known online stockbrokers. Fourth, all market participants have complete information about prices and quality. This should be the case for online stockbroker services since their prices are posted on their respective websites, and other sites exist for traders to post feedback on the quality of service. A business that operates in a market characterized by perfect competition cannot set prices, but rather must set prices consistent with those set by other market participants, unless the business compensates by changing a price on another service in the opposite direction, such that the overall price offered by each online stockbroker is essentially the same. Since casual observation reveals that online stock trading fees are not identical, this paper uses data from online stockbrokers to see if the tradeoff mandated by a perfectly competitive market exists.

Methodology

Research

The research design seeks to explain the online stock trading fee. This fee often appears in advertisements to compare the online stock trading fee from one online stockbroker with those of other online stockbrokers. Therefore the online stock trading fee is explained by other fees and services offered to look for tradeoffs. Tradeoffs can be found by calculating correlations and regressions. The Pearson correlations are calculated for pairs of all the variables to examine tradeoffs between every pair of variables in the study. Regressions are also calculated to focus specifically on the tradeoffs between online stock trading fees and the other fee and service variables. Ordinary least squares regression with a full model looks at all the relationships of the explanatory variables to the dependent variable in one regression. In addition, a standard stepwise regression procedure identifies only the most influential explanatory variables.

Data

Online stockbrokers were located with the help of online broker rating websites. Then each website was visited during February, 2012, to obtain information from each broker regarding their fees and services. A total of nine different services were found to be common to online stockbrokers. These nine services include trading stock online, trading stock with broker assistance, a base charge to trade an option contract, an additional fee to trade options per contract, the minimum amount to open an account, the annual fee to have in individual retirement account (IRA), the ability to reinvest stock dividends for free, an annual account fee, and an inactivity fee levied when a minimum number of trades are not executed. The nine services become the nine variables in this study and their data are summarized in Table 1.

Table 1 shows for each of the nine variables the number of observations, the mean, the standard deviation, the minimum, the median, and the maximum. Each variable is identified with an abbreviated name. The trading stock online variable (Online), the trading stock with broker assistance variable (Broker), the base charge to trade an option contract (Option), the additional fee to trade options per contract variable (Contract), and the ability to reinvest stock dividends for free variable (DRIP), all have standard deviations much smaller than their means, and means very close to their medians, which suggests normality in the distributions. However, the minimum amount to open an account variable (Open), the annual fee to have in IRA variable (IRA), the annual account fee variable (Account), and the inactivity fee levied when a minimum number of trades are not executed variable (Inactive) all have standard deviations larger than their means, and means that are distant from their medians, which suggests skewed distributions.

Model

The full regression model is as follows:

$$\text{Online} = \beta_0 + \beta_1\text{Broker} + \beta_2\text{Option} + \beta_3\text{Contract} + \beta_4\text{Open} + \beta_5\text{IRA} + \beta_6\text{DRIP} + \beta_7\text{Account} + \beta_8\text{Inactive} + \varepsilon$$

The stepwise regression procedure uses the same variables, but puts in the most influential variable in the first step, the next most influential variable in the second step, until variables are no longer significant at a selected alpha level. The alpha level selected is 0.05 to enter or remove variables.

Results

Correlations

The correlations between all the fee and service variables are shown in Table 2. These correlations were generally expected to be negative and significant, since the theory of perfect competition suggests that one online stockbroker could not survive with overall fees and services being either exceptionally high or exceptionally low. Of the variables expected to have negative correlations, only ten variable pairs have negative correlations, but eighteen variable pairs have

positive correlations. In addition, none of the negative correlations are significant at even a five percent level.

The only positive correlation expected is that between the availability of a free dividend reinvestment plan, which is a dummy variable, and the other variables. Although positive correlations were expected between the availability of a free dividend reinvestment plan and the other variables, and two variable pairs are positive, the only significant positive correlation is with the base charge to trade options. This is the only support in the correlations for the theory of perfect competition, since a free dividend reinvestment plan is available with those online stockbrokers that charge a higher base fee to trade options, and this is an expected tradeoff. In addition, the availability of a free dividend reinvestment plan is negatively and significantly correlated with the minimum amount to open, the account maintenance fee, and the account inactivity fee. This suggests that sometimes higher fees are associated with the absence of a free dividend reinvestment plan, which is inconsistent with the theory of perfect competition.

On the other hand, many positive, and some even significant correlations exist which are not consistent with the theory of perfect competition. A higher fee to trade stock is significantly correlated with the broker assisted charge variable, the option base variable, and the per option contract fee variable. Also, a high option base charge is significantly correlated with a high per option contract fee, a high minimum to open is significantly correlated with a high inactivity fee, a high IRA annual fee is significantly correlated with a high inactivity fee, and a high account maintenance fee is significantly correlated with a high inactivity fee. This suggests that sometimes high fees are often associated with other high fees, and is inconsistent with the theory of perfect competition.

Regressions

The regression results from the full model as well as the stepwise procedure appear in Table 3. The first column has results from the full model, and the next three columns report the results from the stepwise procedure.

The full regression results are from regressing the online fee to trade stock on all other fee and service variables. Although two fees are negatively associated with the online fee to trade stock, those associations are not significant. The other fee and service variables are positively associated with the fee to trade stock, and three are significant. The broker assisted trade fee and the minimum to open amount are both positively associated with the online fee to trade stock at the 0.05 level of significance. An increase of one dollar in the broker assisted fee corresponds to an increase in the online trading fee of seven cents. An increase of \$1,000 in the minimum amount to open an account is associated with an increase of \$1.08 to conduct an online stock trade. The option base fee is positively associated with the online fee to trade stock at the 0.01 level of significance. An increase of one dollar in the base option fee corresponds to a thirty-five cent increase in the fee to trade stock online. The independent variables in the full model explain over 67 percent of the variation in the online stock trading fee dependent variable using twenty-six observations.

The results from the first step in the stepwise regression shows that the base fee to trade an option has the most ability to explain variation in the online trading fee variable. About 50 percent of the variation in the online trading fee variable is explainable from the base fee to trade an option variable. The coefficient on the base fee to trade an option suggests that an extra one dollar base fee to trade an option is associated with an extra forty-one cents to make and online trade. The results from the second step in the stepwise regression procedure shows that adding the broker assisted trading fee raises the explanatory power of the regression to 59 percent. An extra one dollar in the broker assisted trade fee is associated with an extra nine cents in the online stock trading fee. The results from the third and final step in the stepwise procedure show that by retaining the base fee to trade an option and the broker assisted trade fee variables, and adding the minimum to open an account variable, raises the explanatory ability of the regression to 67 percent. With little change in the coefficients of the first two variables from the previous steps, the third step suggests that adding \$1,000 to the minimum to open an account is associated with an increase of the online trading fee variable of seventy-nine cents. The stepwise regression procedure uses the same twenty-six observations to affirm the significance and sign of the three significant independent variables found in the full regression model.

Discussion

The greatest contribution of this study may be in the discovery that high fees for some services are associated with high fees for other services. The reason for the importance of this discovery is that clients of online stockbrokers tend to trade excessively, and this excess trading results in returns below those of the general stock market. Therefore in order to reduce trading fees, potential clients of online stockbrokers should be able to examine and compare the stock trading fee with different online stockbrokers and be fairly confident that the level of the stock trading fee found at a particular service provider will directly correspond to the level of other fees. There does not seem to be a tradeoff in fees with online stockbrokers as suggested by the theory of perfect competition.

Of course, this does not make the theory of perfect competition invalid. Other services are available that have not been measured, so a low stock trading fee may not be the only reason to use a particular online broker. Services not measured and represented in this study includes such things as website setup, research services available, representative availability, ease of interpreting account statements, and possibly other factors. Clients may wish to consider these additional factors in addition to fees before choosing an online stockbroker. These additional services, when measures of them are available, would provide data for future research. One thing that does seem clear from this study is that the level of the online stockbroker fee to trade stock from a service provider tends to correspond with the level of fees for other services.

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Tables

Table 1: Descriptive Statistics for Online Stockbroker Fees and Services

Variable	N	Mean	Std. Dev.	Minimum	Median	Maximum
Online	27	7.14	4.09	1.00	6.95	20.00
Broker	26	22.46	15.09	1.50	21.75	54.99
Option	27	7.58	7.03	0.00	6.95	34.00
Contract	27	0.78	0.39	0.10	0.75	2.00
Open	27	1,222	2,263	0.00	500	10,000
IRA	27	14.44	16.72	0.00	0.00	45.00
DRIP	27	0.81	0.40	0.00	1.00	1.00
Account	27	3.70	19.24	0.00	0.00	99.95
Inactive	27	16.48	36.94	0.00	0.00	120.00

Note. The variable definitions are: Online is the fee to buy or sell stock without assistance; Broker is the fee to buy or sell stock with broker assistance; Option is the minimum to trade an option contract; Contract is the per contract fee to trade options; Open account is the amount of dollars needed to open a trading account; IRA is the annual charge to have in individual retirement account; DRIP is a dummy variable coded one if the online discount broker offers free dividend reinvestment; Account is the annual charge to keep a trading account open; and Inactive is the charge levied on an account that does not have a minimum number of trades.

Table 2: Pearson Correlations for Online Stockbroker Fees and Services

	Online	Broker	Option	Contract	Open	IRA	DRIP	Account
Broker	0.40*							
Option	0.73**	0.10						
Contract	0.56**	0.15	0.57**					

Open	-0.17	-0.03	-0.28	-0.07				
IRA	-0.32	-0.33	-0.29	0.06	0.32			
DRIP	0.15	-0.20	0.41*	-0.16	-0.64**	-0.34		
Account	0.14	0.10	-0.21	0.11	0.33	0.25	-0.41*	
Inactive	-0.13	0.09	-0.37*	0.11	0.56**	0.39*	-0.68**	0.45*

Note. The variable definitions are: Online is the fee to buy or sell stock online without assistance; Broker is the fee to buy or sell stock with broker assistance; Option is the minimum to trade an option contract; Contract is the per contract fee to trade options; Open is the amount of dollars needed to open a trading account; IRA is the annual fee to have in individual retirement account; DRIP is a dummy variable coded one if the online discount broker offers free dividend reinvestment; Account is the annual fee to keep a trading account open; and Inactive is the fee levied on an account that does not have a minimum number of trades. * $p < .05$. ** $p < .01$.

Table 3: Regression Results Explaining Online Stock Trading Fees with Other Fees and Services

Variable	Regression			
	Full Model	Stepwise 1	Stepwise 2	Stepwise 3
Constant	-1.70	4.20	2.38	1.38
Broker	0.07*		0.09*	0.09**
Option	0.35**	0.41**	0.39**	0.42**
Contract	2.18			
Open	0.001*			0.00079*
IRA	-0.05			
DRIP	2.59			
Account	-0.006			
Inactive	0.04			
Adjusted R ²	70.2%	49.7%	59.3%	66.6%

Note. N = 26. The variable definitions are: Online is the fee to buy or sell stock without assistance; Broker is the fee to buy or sell stock with broker assistance; Option is the minimum to trade an option contract; Contract is the per contract fee to trade options; Open is the amount of dollars needed to open a trading account; IRA is the annual charge to have in individual retirement account; DRIP is a dummy variable coded one if the online discount broker offers free dividend reinvestment; Account is the annual charge to keep a trading account open; and Inactive is the charge levied on an account that does not have a minimum number of trades.

* $p < .05$. ** $p < .01$.

The Evolving Role of the Physician Executive

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Abstract

Fighting for Control – during the past two decades as physicians witnessed the rise to power of administrators and hospitals as institutions in their own right, they naturally fought to protect their control over medicine. Physician leadership is now essential as we enter an increasingly complex environment in which cost reductions are being sought, healthcare quality outcomes directly impact reimbursement, and physician extenders are being utilized in increasing numbers. The lofty goals of better outcomes and lower costs cannot be accomplished without the leadership and cooperation of physicians.

Introduction

During the past two decades as physicians witnessed the rise to power of administrators and hospitals as institutions in their own right, they naturally fought to protect their control over medicine. But rather than fighting for a place at the table in the health care industry of the future, battles frequently seemed to be about bringing back what was considered to be the “good old days” of individualism, autonomy and escape from the influence of the bottom line. Physicians tended to be a fragmented lot, typically coming together only in the face of threats (O’Connor, et al, 2006). Physician Executives of today are now armed with business and management skills and are leading the charge to reclaim what was given up, but is rightfully theirs: leadership in the health care industry (Kearns, et al, 2009). A dynamic physician executive on an organization’s top leadership team is no longer a luxury, but an absolute necessity for the future success of the health care industry.

Discussion:

Gone are the days when the physician leader of a health care organization was selected for his position, as a reward, just because he was a well-respected, affable, retired or semi-retired senior physician that had paid his “dues” through years of practice in the community. In this marginal role, he strolled through the hallways and offered friendly advice and served the singular role of striving to unite the physicians and the health care organization’s leaders for the purpose of achieving common goals (Kearns, et al, 2009).

The role of the physician executive has changed immensely over the past two decades. The physician executive of today has a broad array of management opportunities and career choices. Physician Executives take on expanding sets of career opportunities and leadership roles including: Chief Executive Officer (CEO), Chief Operations Officer (COO), Chief

Medical Officer (CMO), Chief Technology Officer, Vice President for Quality, Managed Care Medical Director, Medical Division Vice President/Management Service Organization Executive, and Service-line manager (Coile, 1999).

These opportunities will continue to grow to include increasing areas of management and leadership positions as the health care delivery model in this country goes through transition into the year 2016 and beyond. As health care dynamics shift at an unprecedented pace, with health care reform unfolding and traditional funding sources shrinking, the industry is seeking new leaders in what was once a rarely tapped pool: practicing physicians. Today, organizations at the center of the delivery system, and apparently many on the periphery, are coming to the conclusion that physicians should be in the top management roles. In 2001, hospital boards wanted one physician candidate on the roster for a potential CEO, and by 2006, boards would consider a physician candidate for the post. Now, it's becoming a preference that the CEO be a physician, and this is all happening fairly quickly. (Darves, 2011). The physician leader role of yesteryear was a gross underutilization of the talents that physician executives can bring to the table. To achieve the top leadership roles, the physician executive must have a base of clinical experience, including direct patient care, but it is not necessary to participate in active clinical practice. Truly enabled physician executives will fill their time on activities that are critical to organizational success. Diluting their focus, and hence their value, by requiring physician executives to practice medicine may harm the organization (Kearns, et al, 2009).

In the past, it was frowned upon if a physician executive was not in current clinical practice because it was thought that without continuing to practice it would be difficult to maintain the respect of their peers. Physicians with a Master of Business Administration (MBA) degree were even denounced. However, today, and into the future, physicians that learn the health care business may be better equipped to serve patient populations and help health care organizations achieve their goals (Lazarus, 2008).

The path to the future is to develop physician executives and create leaders in the health care industry to drive meaningful, industry-level change focused on patient care. There are four pillars of professionalism for the physician executive: 1. Dynamic body of knowledge – both in clinical medicine and health care management; 2. Singular focus on the patient, client, or customer – health care is a service industry and patient focus is badly needed; 3. Self-regulation – physician executives should be involved in every step of the regulatory ladder in licensing, credentialing, peer review and practice standards; and 4. A core purpose that involves making society better by reducing suffering associated with illness and improving wellness (Kearns, et al, 2009).

Physician Executives understand the language and the world of clinicians because they lived in it and have ongoing empathy for those front-line physicians providing patient care in an increasingly unforgiving environment. Future physician executives must also have formal training in business, management, and leadership as well. Understanding the practice of medicine is critical, but physician executives must also understand the business of medicine. In the future it will be crucial for health care organizations to have physician leaders that have

credibility with the practicing physicians but are also valuable leaders at the top levels of management and in the board room. Some health care organizations continue to operate without physician executives, but these are becoming fewer and fewer with time (Cors, 2009).

A physician executive must have credible medical experience. Though, they need not be currently practicing they must have a solid background of clinical experience. Additionally, leadership skills are required. The physician executive must have a broad understanding and working knowledge of business organizational skills, including: Management, Strategy, Finance, and Marketing. Effective management and leadership skills are mandatory, and are demonstrated over time. Unlike leadership, management, and strategy, it is not necessary for the physician executive to have a detailed knowledge of finance and marketing such that they are expected to sit down and manage the books or do detailed marketing plans. Their knowledge base should enable them to ask smart, tough questions of their financial and marketing colleagues. Forward-looking organizations have increasingly demonstrated that the re-definition of the physician executive is accurate, pushing the boundaries of expectation outward in all directions (Kearns, et al, 2009).

Physician Executives are in the best position to constantly develop and expertly manage relationships with other physicians in order to improve the perception of excellence by patients and payers. Not only does the physician executive of today, and into the future, have to cement the business partnership between patients, physicians, and payers; he must possess certain skills sets which are conducive to customer satisfaction. It is the Physician Executive who possesses medical knowledge and can align the health care organization's mission to the medical needs of its customers. With an endless list of government mandates and regulations coming within the next few years, and with the advent of financial incentives for improved performance, patient-centered medical homes, Accountable Care Organizations, and quality and safety initiatives, the physician executive of the future must possess business and management experience and be capable of providing leadership toward operational excellence. The physician executive should never forget the principles of the Hippocratic Oath and should seek to incorporate these into the prevailing culture of the health care industry (Safeek, 2008).

In the future, physicians need to reclaim their power for reasons that go well beyond their own well-being. Physician behaviors and attitudes significantly affect the cost, quality and appropriateness of health services. Mounting evidence of avoidable medical errors and wide variance in the use of evidence-based clinical practices suggest that we must question the value of the health services we are currently providing in the U.S. (O'Connor, et al, 2006).

Physician Executives who practice doing no harm, evidence-based medicine, and patient-centered teamwork will be a powerful force for change in the health care industry. It is time to improve the "business model" of health care leadership by integrating it with the "clinical model" of leadership that is so familiar to physicians (Silbaugh, et al, 2009).

It is imminently imperative that all health care organizations understand that to achieve success at the very top levels they must have capable physician executives in the leadership suite.

Conclusion:

The demand for the highly qualified “new generation” of physician executive will increase exponentially during the next decade.

Physician Executives should have a solid history of clinical experience and also possess business and management skills that have been obtained through additional education. This is a personal achievement that sets a physician leader apart from his peers. Successful physician executives will be able to bridge-the-gap between the clinical and management sides of the health care system, and will be able to use this synergy to achieve better results and improved quality in the future.

During the past two decades, and certainly moving into the future, it has become abundantly clear that the health care delivery system in the United States must have physician leadership as one of its major guiding forces to achieve success. It is a critical error, and sets up an organization for failure, if physicians are not part of the top management team. Health Care Organizations that are forward-looking have already seen the importance of recruiting qualified physician executives onto their top management teams.

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TEACHING COLLEGE MICROECONOMICS: ONLINE VS. TRADITIONAL CLASSROOM INSTRUCTION

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Abstract

The use of online course offerings in college has grown sharply in recent years. Previous research, while limited, is inconclusive in determining expected student performance in online versus a traditional lecture format. This paper focuses specifically on student performance in introductory microeconomics classes, analyzing learning differences between those in online and traditional lecture classes. In addition to comparing overall performances, we tested further to determine if gender, ethnicity, major, and levels of achievement and aptitude are factors in explaining differences in performance between lecture and online classes. We then studied the differences between the groups within lecture and online classes to determine if there was a gap in performance due to gender, ethnicity, major, effort, or aptitude. One objective for this study is to better predict student performance in online versus traditional lecture course formats.

Introduction

The number of US college students enrolled in at least one online college class has increased from 1.6 million in fall 2002 to 6.1 million in fall 2010, roughly an increase of about 19% per year. Over the same time period the student body has only increased by about 2% per year. In the fall of 2011, five hundred sixty thousand more US undergraduates took online courses compared to the fall of 2010, with 31% of all higher education students taking at least one online course during their college career (Allen and Seaman, 2011). For the 2007-08 school year the National Center for Education Statistics reported that 24% of business students had taken at least one online course, compared with 20% of all US undergraduates (Radford and Weko, 2011). Online course instruction is expected to continue its growth, even if the pace slows from its previous robust levels.

Our public regional university currently has a total enrollment of approximately 9500 students, with 8200 undergraduates, of which 850 are business students. The average annual growth in online student enrollment from 2005 to 2011 was 14%, while the average annual student population growth was only slightly more than 1%. Our student population is diverse, with about 53% white, 37% African-American and the rest coming from Hispanic, Asian, or Native American heritage. Most are also first-generation college students.

Previous research offers mixed conclusions as to whether student performance in online business and economics courses is as good as that achieved in traditional lecture courses. In most of that research, students' grades in online and lecture classes were compared, but the

researchers rarely differentiated students by characteristics such as ethnicity, age, effort, and aptitude. Our concern with this method is that studying the overall outcome may hide the costs to certain segments of the overall student population. Some divisions of students may suffer with the widespread adoption of online courses. This paper expands the research to determine if major, gender, age, ethnicity, and levels of achievement and aptitude are factors in explaining differences in performance between lecture and online classes. In other words, even if there is little difference overall between all students taking online and traditional classes, will one or more groups of students be affected significantly if online courses replace traditional lecture ones?

For our research we chose to study students from our principles of microeconomics course, a requirement for all our business students as well as many non-business majors. We used data from four microeconomics courses, two online and two traditional, taught by the same professor using the same textbook. Intermediate algebra is the only prerequisite for the course.

Literature Review

Online undergraduate students tend to have certain characteristics. Older, working, financially independent, public college students have been more likely to take online course than their counterparts (Radford and Weko, 2011). This agrees with findings from an older survey of economics departments, which reported that many of those enrolling in online economics courses are non-traditional students, such as working adults and those not seeking degrees (Coates and Humphreys, 2003). Brown and Liedholm (2002) found that those taking online principles of microeconomics courses had higher ACT scores, more college experience, longer work schedules, and fewer reported study hours than traditional students in lecture sections. Shoemaker and Navarro (2000) determined that the online students in their Introduction to Macroeconomics courses were less likely to have taken previous economics courses and had higher GPAs than their traditional macroeconomics students. Keri (2003) also noted age as a factor in the course decision, finding that online economics students tend to be older, with an average age of twenty-eight.

The evidence on how undergraduate economics students perform and the pertinent factors affecting performance in online versus traditional courses has been inconclusive. Navarro (2000) analyzed roughly 50 colleges which together had offered over 100 internet economics courses. He found that lack of student motivation and little self-direction were major factors contributing to poor grades in online internet economics classes. Keri (2003) found that end-of-semester grades for online economics courses were positively correlated with years in college. Brown and Liedholm (2002) found that although women scored significantly lower than men in traditional microeconomics courses, there was not a significant difference in how each performed in online courses. Overall, they found traditional students scored higher than those taking the online courses. They recognized that the traditional students did significantly better on the more complex subject matter, but not on basic conceptual questions. In contrast, Shoemaker and Navarro (2000) found that internet principles of macroeconomics students scored

significantly higher than traditional students. They also noted that gender, ethnicity, class level, and previous economics courses taken made no statistical difference.

Figlio, Rush, and Yin (2010) did an experiment at a selective university where roughly 1400 students were randomly assigned to either online or live lecture sections of a large introductory microeconomics class. The only difference between the two modes was the delivery of the lectures. Some students viewed the lectures in person, while the online students viewed the videotaped lectures on the internet. They found that for all students, the average test score was higher for the live instruction students. More interestingly, they found that the test scores for Hispanic students, male students, low ability (low ACT), and low-achievers (based on prior GPA) were dramatically higher in the live instruction section.

Howsen and Lile (2008) compared outcomes in several principles of macroeconomics classes. Although the same instructor, same tests, same time limits for tests, and same room were used for the online and traditional classes, the online students scored almost one letter grade lower than the traditional students. They concluded that older, female, white, strong math students with high ACT scores did significantly better, regardless of the method of course delivery.

Wilson and Allen (2011) studied four online and traditional management classes at a historically black school, finding that online students had a higher withdrawal rate and a higher failure rate. Another trend pertinent to online students was that they also frequently missed assignment deadlines. They determined that GPA was the major factor in student performance for both online and traditional classes.

Calafiore and Damianov (2011) found that higher GPAs and more hours spent online positively influence grades in online courses. Two separate studies by Tseng et al. (2010) and Damianov et al. (2009) also agree that more time online corresponds with higher grades, although Damianov et al. stress that even with extra effort the B student is unlikely to earn an A unless he also has a higher GPA. McGlone (2011) suggests that since older students tend to prefer online courses, colleges should structure the online courses by offering self-paced deadlines with computer skill instruction, as needed.

In reviewing an MBA microeconomics course, taught both online and traditionally, Bennett, McCarty, and Carter (2011) found that the benefits of online classes are not shared equally among all types of students. For example, the difference between the final grades of high and low achievers (as measured by their GPA) was significantly larger for the online students as compared to the traditional students, suggesting that those students with lower GPAs need to carefully consider taking online economics courses when a traditional course is an option.

Methodology and Results

Student learning was measured by the final average grade in the course. Factors hypothesized to influence the final grade were: type of instruction, online or traditional lecture, ethnicity, gender, GPA, ACT, age, and whether the student was an undergraduate business or nonbusiness major. To measure the effect of ethnicity, since our sample of 101 students is relatively small, we divided the sample into non-minority students, who are white, and minority students, most of whom are African American, but which also includes some Hispanic and Asian American students. The students' ACT scores are indicators of their overall aptitude and ability. The GPA measures how much effort a student has put into his or her studies.

Descriptive statistics for the variables used in our analysis of online and in-class instruction are given in Table 1. The means and standard deviations for the combined sample and then for the sample separated into online and in-class instruction were calculated. A t-test for differences in the means between the lecture and online classes was performed, and the p-value, or significance level, for the difference in means is reported in the last column.

Table 1
Descriptive Statistics by Course and Type of Instruction

The final average score in the online classes was slightly higher, 0.31 points, than the average score for the lecture sections, but the difference was not significant. Like Shoemaker and Navarro (2000) we found that the GPA average of the online students was higher than the average for the lecture students and significant at the 0.047 level. In agreement with Brown and Liedholm (2002) we found that students in the online sections had higher ACT scores, but the difference was not significant. Students in the online class were approximately 2 years older, and the difference was significant at the 0.007 level. Keri (2003) also found that online students were older; however, the average age of our online students was almost 23 years, considerably younger than the average age of 28 in Keri's sample.

Table 2 summarizes the final grade averages by gender for the combined sample and for both types of instruction separately.

Table 2
Final Averages by Gender and Type of Instruction

Although the difference was not significant, in the entire sample the average score for the women was higher than the average score for the men, a result which is contrary to most previous research. The women had a higher average than the men in the lecture classes, but the men had higher averages online. The women did better in the lecture sections compared to the online. The opposite was true for the men, who scored higher online than in the lecture classes. None of the differences based on gender were significant, however. It is interesting to note that the mix between men and women in the entire sample is balanced, 51 percent women and 49 percent men. However, when the sample is divided into type of instruction, almost twice as many women, 67 percent, were enrolled in the online classes as men, 33 percent. The differences in proportions between the entire sample and the online classes were significant at

the 0.062 level. Since there were only 15 men in the online portion of the sample, their average score is most likely not representative of the performance of men in general in online courses.

Table 3
Final Averages by Ethnicity and Type of Instruction

Both minorities and non-minorities had higher averages in the lecture than in the online classes, but the difference was not significant. The differences between minority and non-minority performance in the combined sample and in each type of instruction were significant, with non-minorities having higher averages in each case. The gap was wider in the online classes where non-minorities averaged 9.29 points higher than the minority students. This supports the findings of Figlio, Rush, and Yin (2010) who found that minority students did not perform as well with online instruction as in traditional classes.

Table 4
Averages by Major and Type of Instruction

As a group, non-majors had higher averages online; however, majors had higher averages in class. These differences were not significant. In the lecture classes, the majors' average was higher, 76, compared to 72.81 for the non-majors, but the difference was not significant. For the online classes, the non-majors' average 77.67, was significantly higher than the majors' average of 70.

Table 5
Averages by Level of Achievement and Type of Instruction

To test the effect of student effort on performance, we divided the students based on GPA into three categories, approximately equal in number: low achievers, students in the lowest one-third of the sample with GPAs less than 2.45; medium achievers, with GPAs from 2.45 to 3.01; and the top one-third of the sample with GPAs above 3.01. Then we tested the performance of the 34 low achievers, those with GPAs of less than 2.45, against that of the 35 high achievers, students with GPAs of more than 3.01. Both groups performed slightly better in the lecture class compared to the online class, but the differences were not significant. However, for the sample as a whole and within each type of instruction, both lecture and online, the high achievers averages were significantly higher than the averages for the low achievers. In their research for principles of macroeconomics, Howsen and Lile (2008) found similar results for students with higher ACT scores.

Table 6
Averages by Aptitude and Type of Instruction

To determine the effect of aptitude, the students were divided into three levels based on the ACT scores of the entire sample. The 38 students with ACT scores of 18 or less were in the low aptitude group. Students with ACT scores of 19 and 20 were in the middle group. The 32

students with ACT scores of 22 or more were classified as high aptitude. The scores of both low and high aptitude students were slightly higher in the online class, but the difference was not significant. Within the lecture classes, however, the high aptitude students scored 12.31 points higher than the low aptitude students, significant at the 0.001 level. In the online classes the difference between the high and low aptitude groups was larger, 13.44 points, significant at the 0.006 level.

The descriptive statistics revealed that although the online students did have higher average ACT scores, the difference was not significant. However, the online students were significantly older by an average of 2 years, and they had significantly higher GPAs. The tests of means for different student characteristics showed no significant differences for men and women. We found significant differences between minority and non-minority students, between low and high achievers, and between low and high aptitude students in both the lecture and online instruction. These differences were larger in the online classes between the minority and non-minority students and the low and high aptitude students. The fact that the gap in scores was larger in the online classes may indicate that minorities and low aptitude students are not well-served by online classes.

Summary and Conclusions

Our research revealed that for the combined sample, including both methods of instruction, non-minorities, high achievers, and high aptitude students had significantly higher average scores than minorities, low achievers, and low aptitude students. Although women and non-majors had higher scores than men and business majors, the difference was not significant. With respect to the different methods of instruction, men, non-business majors, and both low and high aptitude students had scores that were slightly higher in the online sections than in the lecture sections. Women, business majors, minorities, non-minorities, and both low and high achievers had better scores in the lecture sections. None of the differences based on method of instruction was significant for any of the groups. However, when the differences in performance for each group **within** each method of instruction were compared, we found that in both lecture and online classes, non-minorities, high aptitude students, and high achievers significantly outperformed minorities, low aptitude students, and low achievers. In addition, the difference was significantly larger for the minorities in the online class, 9.29 points lower, compared to the lecture class. The difference between high and low aptitude was also larger, 13.44 points, in the online classes.

Based on minority versus non-minority status and aptitude levels, we found that the difference between the lower and higher groups is larger in the online classes, perhaps implying that this method of instruction may widen the gap between the two groups. If this is the case schools may need to evaluate the effectiveness of online classes considering the possibility that they may further widen the gap between the low and high aptitude and minority and non-minority students.

Citing research claiming that student performance in online courses is equal or better in quality than lecture courses, academic administrators have embraced online learning as a cost-saver equivalent, especially with the decreases in government funding for education. Although further testing on the impact of ethnicity, aptitude, and achievement levels should be conducted in other courses and at other universities before definite conclusions are drawn, this research in undergraduate principles of microeconomics suggests that the benefits of online education are not shared equally among all students. If this proves to be the case in other courses and at other institutions, then the substitution of online for lecture classes may not be justified.

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Tables

Table 1: Descriptive Statistics by Course and Type of Instruction

	All Classes	Lecture	Online	Difference between means p-value
Final	74.61	74.47	74.78	0.901
Average	(12.4)	(11.21)	(13.98)	
GPA	2.74	2.63	2.87	0.047
	(0.60)	(0.581)	(0.608)	
ACT	20.18	19.89	20.61	0.362
	(3.92)	(3.30)	(4.55)	

Age	21.6 (3.74)	20.7 (3.14)	22.7 (4.11)	0.007
Number of Observations	101	55	46	

Values in parentheses are standard deviations.

Table 2: Final Averages by Gender and Type of Instruction

	All Classes	Lecture	Online	Difference between means lecture vs online p-value
Women	75.25 (12.97) n=52	77.33 (11.68) n=21	73.84 (13.78) n=31	0.345
Men	73.94 (11.9) n=49	72.71 (10.7) n=34	76.73 (14.23) n=15	0.279
Difference between means women vs men p-value	0.60	0.138	0.513	

Values in parentheses are standard deviations.

Table 3: Final Averages by Ethnicity and Type of Instruction

	All Classes	Lecture	Online	Difference between means lecture vs online p-value
Minority	68.48	68.80	67.92	0.85

	(12.9)	(9.59)	(17.36)	
	n=31	n=19	n=12	
Non-minority	77.33	77.44	77.21	0.93
	(11.27)	(10.95)	(11.73)	
	n=70	n=36	n=34	
Difference between means minority vs non-minority	0.0008	0.0057	0.04	
p-values				

Table 4: Averages by Major and Type of Instruction

	All Classes	Lecture	Online	Differences between means lecture vs online p-value
Non-Majors	75.26	72.81	77.67	0.143
	(12.41)	(10.5)	(13.5)	
	n=56	n=26	n=30	
Majors	73.77	76.01	70.00	0.177
	(12.8)	(11.9)	(13.7)	
	n=45	n=29	n=16	
Differences between means majors vs non-majors p-value	0.55	0.301	0.052	

Table 5: Averages by Level of Achievement and Type of Instruction

	All Classes	Lecture	Online	Differences between means
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				lecture vs online p-value
Low Achievers	66.97 (10.68) n=34	67.27 (10.63) n=22	66.42 (11.22) n=12	0.87
High Achievers	81.97 (11.4) n=35	84 (8.03) n=14	80.62 (13.23) n=21	0.39
Differences between means low vs high achievers	0.00003	0.0001	0.003	

Table 6: Averages by Aptitude and Type of Instruction

	All Classes	Lecture	Online	Differences between means lecture vs online p-values
Low Aptitude	68.5 (11.6) n=38	68 (9.8) n=19	69 (13.5) n=19	0.80
High Aptitude	81.38 (11.62) n=32	80.31 (9.7) n=16	82.44 (13.5)	0.61
Differences between means low vs high aptitude p-values	0.0006	0.001	0.006	

Market Breakdown of the Declining Marginal Reaction of ADR Issuers

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Abstract

Previous research has found that non-US firms that initiate an American Depository Receipt (ADR) program experience a reduction in their cost of capital and that such reduction in the cost of capital for a firm is less than the cost of capital reduction experienced by previous ADR-issuing firms from the same country. While previous research report findings for this decreasing cost of capital effect for all ADR issuers as a group, this study reports significant results within individual countries.

Introduction

The purpose of this study is to determine if firms with an American Depository Receipt (ADR) program experience smaller abnormal returns at the time of issuing an ADR than previous firms in the same market during the previous firms' ADR's issuance. This study is similar to Blaylock and Duett (2004) who find a decreasing cost of capital effect for individual ADR issuers. However, whereas Blaylock and Duett report significant findings for ADR issuers as a group, this study reports significant results within individual countries.

An ADR is a negotiable security representing a particular number of shares of a foreign company's publicly traded equity or debt, although most ADR programs are associated with equity (BNY MELLON 2012). ADRs offer benefits to both investors and issuing companies. For investors, ADRs provide an easier method of international diversification than buying the foreign security directly. ADRs can be exchanged for the underlying securities (Sundaram and Logue 1996 and BNY MELLON 2012), but unlike trading in the underlying securities, transfer and settlement practices for ADRs follow more familiar U.S. law (Sundaram and Logue 1996). Depending on the level of the ADR program, information is more readily accessible due to SEC disclosure (Sundaram and Logue 1996). Also, investing in the underlying security itself may entail custodial safekeeping charges which are eliminated when investing in ADRs (BNY MELLON 2012). Foreign exchange complications are lessened since ADRs are quoted in U.S. dollars and dividend and interest payments are in U.S. dollars. Moreover, foreign currencies are converted by the depositary bank at wholesale prices (Sundaram and Logue 1996 and BNY MELLON 2012). More importantly, due to investment barriers and limited investment vehicles, ADRs are a viable means to invest in specific international markets which otherwise may not be accessible. For foreign firms, ADRs provide a means to access the more liquid U.S. equity markets at a possible cheaper cost of capital, expand their name recognition (Foerster and Karolyi 1993, 1999, and Jiang 1998, BNY MELLON 2012), enlarge their investor base (Jiang 1998, Foerster and Karolyi 1999, BNY MELLON 2012), and make acquisitions (Jiang 1998, BNY MELLON 2012).

Five basic types of ADRs exist: unsponsored ADRs, three levels of sponsored ADRs, and one type of sponsored privately-placed ADR. Unsponsored ADRs occur when a depositary issues ADRs without a formal agreement with the underlying company. Unsponsored ADRs are rarely created at present. Level I ADRs trade in the U.S. over-the-counter (OTC) market and are not required to meet full Securities and Exchange Commission (SEC) disclosure or comply with U.S. Generally Accepted Accounting Principles (GAAP). For this reason, Level I ADRs are the largest and fastest growing type of ADR (Miller 1999). Level II and Level III ADRs are listed on major exchanges such as NYSE, AMEX, and NASDAQ. Both types must comply with GAAP but each requires different levels of SEC disclosure. Since Level III ADRs are used to raise new capital on U.S. exchanges, they incur full SEC disclosure. Rule 144a ADRs are sponsored ADRs used to raise new capital through private placement. As a privately-placed security, they avoid SEC disclosure.

Investors desire international diversification due to the possible low correlations among international equity markets which, of course, would reduce the variance of the investor's portfolio achieving a better risk-return trade-off (Speidell and Sappenfield 1992). However, barriers to investment exist causing segmented markets and higher risk premiums (Foerster and Karolyi 1993). American Depositary Receipts bypass these barriers integrating markets and reducing the cost of capital for the issuing firm. Bekaert and Harvey (2000) find that ADRs from emerging markets gradually reduce each market's aggregate cost of capital as the segmented markets become more integrated with the world market. This would suggest, at the firm level, a general pattern of a declining marginal cost of capital effect for every additional firm issuing ADRs from the same market. In other words, the reduction in the cost of capital of the firm initiating the second ADR program should be less than the reduction in the cost of capital of the firm initiating the first ADR program. Also, as more ADRs are issued in the market, existing ADRs should experience a continued reduction in the cost of capital albeit at a decreasing rate. This study attempts to analyze the cost of capital effects for the marginal ADR-issuing firm within each country.

Review of the Literature

Chang, Eun, and Kolodny (1995) assert that diversification gains as measured by index returns are often not achievable since actual investment in the market may be hindered either directly or indirectly. To reap the benefits of diversification, investors would need a means to access the international markets. Achievable investments given by Bekaert and Urias (1999) that circumvent these barriers are closed-end funds, American Depositary Receipts, and open-end funds. They find that these investment types are found to provide significant diversification benefits in the 1993-1996 test period.

Barriers to international investment would at least partially segment international equity markets and produce a higher risk premium on shares traded on the restricted markets (Errunza and Losq 1985, Foerster and Karolyi 1993). Market segmentation is the condition of heterogeneous pricing of assets with the same risk level. Since barriers to international investment tend to segment capital markets and, accordingly, increase risk premiums, removing

these barriers would open the segmented markets to a greater level of foreign investor activity. This process of removing barriers is coined in much of the literature as stock market liberalization. Liberalizations would integrate segmented markets and should reduce the cost of capital. The drop in the cost of capital after a liberalization may imply that the market was segmented prior to the issue. Evidence provided by Miller (1999), Foerster and Karolyi (1999), Bekaert and Harvey (2000), and Henry (2000) show that liberalizations reduce or bypass investment barriers resulting in a reduction in the cost of capital for the liberalizing market or for the cross-listing (liberalizing) firm. The reduction in the cost of capital is used as evidence that the market was segmented prior to the liberalization.

Bekaert and Urias (1999 p.92) state, “The returns investors can expect to earn in emerging markets are likely to fall as integration proceeds. Specifically, the integration process may lead to one-time discrete price hikes that bring about lower expected returns going forward” (see also Bekaert and Harvey 2000). Bekaert (1995) finds that markets with a greater number of country funds and ADRs have a lower average cost of capital. Bekaert and Harvey (2000) find that market liberalizations subsequent to the initial liberalization reduce the cost of capital for the issuing emerging market at a decreasing rate.

Following this reasoning, once ADRs are issued, a liberalizing action, the market of the issuing firm can be perceived to be more integrated with the world market, and, as a result, both the market and the issuing firm experience a reduction in the cost of capital. However, a question arises as to how each additional ADR, as well as any other additional liberalization, affects the integration process. As Henry (2000) notes, if complete integration is achieved with the initial liberalization, then subsequent liberalizations would have a minimal if no effect on the cost of capital. This would be the case because either the market became fully integrated with the first liberalization or future liberalizations were anticipated so that the cost of capital was adjusted at the initial liberalization. However, integration may be a gradual process so that each additional liberalization after the first continues to integrate the liberalizing market with the world market. If this is the case, each additional liberalization would cause the market to experience a reduction in the cost of capital at a decreasing rate until the market is fully integrated.

ADR issuance results in a reduction in the cost of capital for the issuing firm (Miller 1999). The cost of capital effect is interpreted as a breaching of segmented markets. Market liberalizations, including ADR programs, may also reduce the cost of capital for the liberalizing market as a whole for the same reason (Bekaert and Harvey 2000; Henry 2000). Liberalizations subsequent to the first, as indicated by Bekaert and Harvey (2000), continue to integrate segmented markets which lead to a further reduction in the cost of capital for the market. Applying this to ADRs, firms that issue ADRs should experience a cost of capital reduction, along with an aggregate cost of capital reduction in the liberalizing market. The gradual nature of integration and the resulting cost of capital changes imply that the cost of capital effect from every subsequent ADR diminishes. This is seen in Bekaert and Harvey (2000): every additional ADR reduces the aggregate cost of capital for the market at a decreasing rate. Yet, what is the effect on the cost of capital for the marginal ADR-issuing firm itself? Blaylock and Duett (2004) find that the cost of capital does decrease for the marginal firm during the listing of its ADR but

not during the announcement of its ADR. They report their findings for all the analyzed ADR issuers as a group. This study attempts to analyze the decreasing marginal cost of capital effect by country. Specifically, the purpose of this study is to determine if firms with an ADR program experience smaller abnormal returns at the time of issuing an ADR than previous firms in the same market during the previous firms' ADR's issuance and to report such abnormal returns by country. The terms "issuance" and "initiated" as used here and throughout the study refer to either the listing of an ADR program or the initial announcement of an ADR program.

Data and Methodology

The sampling procedure follows that of Blaylock and Duett (2004). Thus, daily returns of each of the first 10 ADRs originating from the 20 emerging markets in Bekaert and Harvey (2000) (which is inclusive of the list of emerging markets in Henry) are needed as well as market indices from those markets. As indicated below, a country must have at least two ADR programs to be included in the sample. This is because at least two ADRs are needed to form a pattern of marginal abnormal returns, which is the focus of this study.

The sample of firms was obtained from a directory of ADRs provided by Citibank. This directory is cross-checked with directories from Bank of New York, NYSE, and NASDAQ. Due to the lack of verifiable dating information for privately placed (144A) ADRs and their small abnormal return effects as reported by Miller (1999), privately placed ADRs are not used in the study. Therefore, this study focuses on "non-144A" ADRs for each country.

This study calls for both a date when an impending ADR issue is first announced and a date when the ADR lists on the exchange and actually begins trading. Announcement dates are obtained from a search of press releases from Lexis/Nexis. In cases where dates cannot be found in Lexis/Nexis, the date of the first SEC filing for the impending ADR program is used. This agrees with Hertz et al. (2000) who identify a filing effect that is related to the announcement effect.

Listing dates are obtained from NASDAQ, NYSE, and AMEX for those ADRs that are listed on those exchanges. For the remaining ADRs, closing dates as given by the Citibank directory are used. Citibank reports that the closing dates reported are usually within three days of the listing date. However, the first of the month is reported in cases when the month of the closing can be determined but the actual day cannot be determined. In instances where an announcement date can be found after the directory closing date, the announcement date is used as the listing date.

The daily returns of the underlying stock traded on the foreign market and the daily returns of the foreign market indices are obtained from Datastream International and from the foreign stock market itself in cases when data is not available from Datastream. All returns used are of the foreign security for which the ADR is issued, not the returns of the ADR traded in the U.S. For a country to be included in the final sample, listing dates, announcement dates, and return data of the underlying companies must be available for at least two ADR issues. A listing

date and return data must also be available for the first company to list an ADR in a country. An announcement date and return data must also be available for the first company to announce an ADR in a country. In determining the final sample of the first ten ADRs for each country, the ADRs are sorted by listing date. Announcement dates were then determined, as available, for the first twenty ADRs. The ADRs were then formed by country into two lists, one being sorted by announcement dates and the other being sorted by listing dates. Each list is truncated to the first ten ADRs. In some cases, announcement dates cannot be found; however, such ADRs should not be deleted since a time-order sequence of the first ten ADRs is required. In such cases, the listing date is used as the announcement date for sorting purposes only.

ADRs are not deleted from the country lists due to return data unavailability, per se. However, as stated previously, some countries are deleted due to (1) the lack of a sufficient number of ADR programs with return data (at least two per country), listing dates, and announcement dates, and (2) data unavailability or dating unavailability for the first ADR.

The final sample results in nine countries with 51 ADRs available with listing dates and 45 ADRs available with announcement dates. An important reminder is that the ADR sequence is not the same for the list sorted by announcement dates and the list sorted by listing dates. This means that the first ADR to list in a country may not be the first ADR to announce an ADR program.

Schipper and Thompson (1983), Binder (1985a; 1985b; 1998), Foerster and Karolyi (1999), Henry (2000), and Blaylock and Duett (2004) parameterize the abnormal returns through the use of dummy variables in a multivariate regression model (MVRM) as an alternative procedure to the standard residual analysis approach in event studies. Each use some variation of the market model to include an event-day dummy variable of the form

$$R_{it} = \alpha_i + \beta_i R_{mt} + \gamma_i \delta_{it} + \varepsilon_{it}$$

where δ_{it} equals one during the event period and zero otherwise for security i . Thus, γ_i measures the average abnormal return on security i due to the event.

The most important usefulness of this method is its ability to incorporate more than one event, especially when they are clustered (Thompson 1985; MacKinlay 1997). Specifically, (Thompson 1985 p. 159) states that the multiple regression format is useful in cases of multiple events, and that, “multiple regression automatically controls for any multicollinearity caused by the occasional sharing of common announcement periods. It offers an alternative to discarding the common periods.” The multiple events in the present case are the multiple ADR listings. Furthermore, the listings, from the same country as well as from those in other countries, occur very close in event and calendar time so that event windows overlap. Using the dummy variable format simultaneously controls for concurrent event periods such as the case of the listing window of one ADR occurring during the announcement window of the subsequent ADR. It also accounts for exogenous shifts in the equation parameters during the event period (Henry 2000).

A benefit of MVRM stated by Binder (1985b; 1998) is that the abnormal returns are allowed to differ across firms.

Control variables used in Henry (2000) include an index on emerging market funds, the S&P 500, and Morgan Stanley's Europe, Asia, and Far East (EAFE) stock market index, and dummy variables measuring macroeconomic stabilization, trade opening, privatization, and exchange controls. Control variables used by Bekaert and Harvey (2000) include measures of asset concentration, stock market development/integration, microstructure effects, and microeconomic influences and political risk. However, both of these studies focus on aggregate cost of capital changes for the market as a whole while this study focuses on cost of capital changes for individual firms. As such, many of the control variables in Bekaert and Harvey (2000) and Henry (2000) may be unnecessary. Also, some control variables needed here may be unnecessary for their studies.

Obvious controls for this study used in Henry include the effect of market returns on individual asset returns. This is the fundamental formulation of the market model. Foerster and Karolyi (1999) use local market index excess returns and global market index excess returns. This is consistent with the assertion of Jiang (1998) that asset returns within segmented markets are explained by both world economic factors and country specific economic factors. She finds that both the U.S. and the home market explain ADR returns. The S&P 500 index and the respective home market index are used in this study's IAPM to control for systematic market fluctuations. A U.S. index is used vice a world index since this study is concerned with firms cross-listing in the U.S. market. Note that Bekaert and Harvey (2000) assess the impact of not only ADRs on the aggregate cost of capital for the market but also the impact of country fund introductions and, along with Henry (2000), official market liberalizations. Market liberalizations and country fund introductions may also impact the returns of existing ADRs. However, since these events affect the market overall, the index of home market returns should capture the effects of these events. Therefore, other liberalizing events are not included in the model.

A general pattern of large abnormal returns should be followed by smaller abnormal returns. A method is needed, therefore, to ascertain any pattern in the abnormal returns experienced by each ADR issuing firm. The following model uses a dummy variable that indicates in a panel regression the order of the ADR issuer:

$$R_{it} = \alpha_i + \gamma^{\text{ORDER}} \text{ORDER}_{it} + \beta_i^a R_M^a + \beta_i^{\text{US}} R_M^{\text{US}} + \epsilon_i$$

where R_{it} is the daily returns for firm i at time t . R_M^a and R_M^{US} are the daily returns for the local market index for the A^{th} market and the daily returns for the US S&P index, respectively. ORDER is a dummy variable that equals 1 for each R_{1t} (daily return for the first ADR issuer at time t), 2 for each R_{2t} , etc., up to R_{10t} . Therefore, the range of ORDER is 1 - 10. Thus, γ^{ORDER} measures the marginal change in average daily abnormal returns from the previous ADR listing or announcement. The variable, γ^{ORDER} , is expected to be significantly negative (the marginal effect is smaller than the previous effect).

Bekaert and Harvey (2000) use the variable λ within the parameter Y as a measure of the rate of change in the marginal abnormal returns for the market due to ADR issuance as seen in the equation

$$Y^x = (1 - \lambda^x)/(1 - \lambda)$$

where x is the number of ADRs existing. The effect of Y is the actual change in marginal returns while λ measures the rate of that change. Bekaert and Harvey restrict λ to 0.90 for all of their estimations. This means they fix the marginal change to be 90% of the previous marginal change. Given the first ADR issuance, $Y = 1$. Given the second ADR issuance, $Y = 1.9$. If the market experiences abnormal returns of 10% due to the first ADR issuance, then it would experience 9% ($10\% * 0.9$) due to the second ADR issuance for a total marginal change for issuing two ADRs of 19% which is 1.9 times the original change. In reality, the rate of change in the marginal returns from one ADR to the next could vary, but they restrict λ to equal 0.9. Likewise, although the marginal effect may change or vary over time, the methodology in this study fixes that change to one simple interpretable measure. That measure is γ^{ORDER} . While Bekaert and Harvey assume each marginal change will be 90% of the previous change, the model in this study fixes each marginal change to be equal, or, 100% of the previous change.

The model is estimated by two panel regressions (1) across all ADRs and all countries and (2) by country across all ADRs.

Empirical Results and Analysis

The results of are presented in Table 1. Table 1 shows that the marginal average abnormal daily returns for each marginal firm to list an ADR decrease by 8 basis points (p-value of <0.0001) from the abnormal returns of the previous firm to list an ADR. The abnormal return for each additional ADR is 8 basis points per day less than the previous issuer's abnormal returns.

This result is similar to what is found in Bekaert and Harvey (2000). They find that the coefficient for Y , their measure for marginal change, is -0.097%. Aggregate market dividend yields fall by 9.7 basis points when the first ADR is introduced. Since Bekaert and Harvey fix the rate of change in marginal returns to be 0.9, the aggregate market dividend yield would fall by an additional 8.73 basis points (90% of the original 9.7 basis points) when the second ADR is introduced. Thus, aggregate dividend yields fall by a total of 18.43 basis points after a total of two ADRs are introduced ($9.7 + 8.73$, or when two ADRs are issued $Y = 1.9$. $9.7 * 1.9 = 18.43$). A total of ten ADRs would make $Y = 6.51$ and reduce aggregate dividend yields by 63 basis points ($6.51 * 9.7$). Given 63 basis points for ten ADRs makes the average decline in dividend yields to be 6.3. This number from Bekaert and Harvey's model for aggregate dividend yields is comparable to the 8 basis point decline in the issuing firms' marginal abnormal returns.

Estimating by country reveals that all countries except Colombia experience the same marginal reduction in the abnormal returns. The marginal changes for Greece and India are significant at the 1% and 5% levels, respectively.

The average abnormal daily returns fall by 5 basis points (p-value of 0.0245) for each marginal ADR announcement. Estimating by country reveals that six of the nine countries experience decreasing marginal abnormal returns, but only one of those marginal effects, for Greece, are significant with a decrease in marginal returns of 43 basis points and a p-value of 0.0170.

Summary and Conclusions

This study uses the cross-section and time series of returns from 51 ADR-issuing stocks from 9 emerging markets to determine if the reduction in the firm's cost of capital upon the issuance of an ADR decreases for the marginal ADR issuer. Results are reported by country and show that the cost of capital effect does decrease for the marginal firm during the announcement and listing of their ADR. Whereas previous studies such as Bekaert and Harvey (2000) and Henry (2000) have concentrated on a declining marginal impact of liberalizations on the aggregate market, this study analyzes the declining marginal impact for individual ADR issuers.

Whereas Blaylock and Duett (2004) report results for the first 10 ADR issuers per country as a group this study reports results for each individual country. Also, for the first 10 ADR issuers as a group, Blaylock and Duett (2004) find that the cost of capital effect decreases for the marginal firm during the listing of their ADR but not during the announcement of their ADR. However, this study finds significant declining marginal reactions for both ADR listings and announcements for ADR issuers across all 9 markets. Unique to this study is the discovery of significant marginal reactions for country-specific issuers.

The rate of decrease in the cost of capital for existing ADRs would have important implications for investors, foreign firms, and foreign regulatory powers. The number of ADRs outstanding in the country or region and the rate of change in the cost of capital would affect investors' expected returns on ADR investments, the firm's decision to issue ADRs and at what time, and the government's decision for increasing liberalization efforts.

This study shows that the marginal reaction for each ADR issuer falls with each subsequent ADR issue. The change in the cost of capital the issuer experiences is less than that which was experienced for the previous ADR issuer. This is true for issuers that experience either positive or negative abnormal returns around issuance. The implication is that firms in liberalizing markets should not hesitate to issue ADRs. If positive returns are expected, the impact may decrease if the firm allows other firms to issue an ADR before them. If negative returns are expected, those returns may be more negative if the firm allows other firms to issue an ADR before them.

Table 1

The coefficient γ_i^{ORDER} from the model $R_{it} = \alpha_i + \gamma_i^{\text{ORDER}} \text{ORDER}_{it} + \beta_i^a R_M^a + \beta_i^{\text{US}} R_M^{\text{US}} + \varepsilon_{it}$ is reported. The independent variable R_{it} is the daily returns for firm i at time t and ORDER is a dummy variable that equals 1 for each R_{1t} (daily return for the first ADR issuer at time t), 2 for each R_{2t} , etc., up to R_{10t} . Thus, γ_i^{ORDER} measures the marginal change in average daily abnormal returns from the previous ADR listing or announcement.

	List	Announcement
All ADRs	-0.00081 0.0001***	-0.00046 0.0245**
Chile	-0.00021 0.4041	-0.00016 0.5408
Colombia	0.00022 0.6087	0.000057 0.9034
Greece	-0.00595 0.0004***	-0.00429 0.0170**
India	-0.00050 0.0426**	-0.00015 0.6239
Korea	-0.00053 0.1048	-0.00053 0.1189
Portugal	-0.00032 0.1500	-0.00025 0.2671
Taiwan	-0.00062 0.2157	0.00018 0.6682
Turkey	-0.00004 0.9553	0.00016 0.8469
Venezuela	-0.00018 0.4249	-0.000086 0.7844

Note: p-values are located underneath the coefficients with *, **, *** indicating significance at the 10%, 5%, and 1% levels, respectively.

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Information, Prediction Market, and NCAA Basketball Attendance: The Big East Conference

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Abstract

In recent years, the introduction and investigation of prediction markets and their uses has become very popular in the economics and finance literature. One place where the use of sports prediction markets, more commonly thought of as betting markets, is quite helpful is in exploring the validity of the uncertainty of outcome hypothesis. The uncertainty of outcome hypothesis states that fans prefer to watch games where the expected outcome of the game is close. We test this hypothesis for Big East college basketball, using betting market prices, and find support for this hypothesis in this market. In addition, expected scoring, also formed from prediction markets, is shown to increase attendance.

The link between expectations and consumer behavior is an important element in determining consumer demand in a variety of markets. In relation to sports, this investigation into expectations about game outcomes and their impact on purchasing decisions for game tickets centers around the Uncertainty of Outcome Hypothesis. The basic premise behind this idea is that if fans enjoy uncertainty of outcome, in that they enjoy close games between relatively evenly matched teams, measures of uncertainty of outcome should have a significant effect on attendance. Odds and point spreads from prediction markets (betting markets) are used as measures of uncertainty of outcome and are included in regression models of attendance.

Another element of expectations which could be important to sports-related markets is the role of expected scoring. If fans prefer to see more scoring compared to less due to more scoring generally being associated with more game excitement in the minds of most sports fans, games that feature higher-scoring teams are likely to have more fans purchase tickets. The expectations of scoring in a particular sport are also available through prediction market data, specifically, the posted betting market total on the game. The total, often referred to as the over/under, is the number at which bettors could place a wager on either more points being scored or fewer points being scored than the posted total. Other than the tails of the distribution, where the highest totals tend to be set slightly too high, the totals in the over/under market have been shown to be efficient.

We wish to extend the study of uncertainty of outcome and expected scoring as it relates to game attendance to college basketball in the United States. Specifically, we are studying one of the top NCAA basketball conferences in the country, the Big East. The Big East consists of sixteen teams, located mostly in the Northeastern part of the United States. The colleges of the

big east differ in size and quality and most of the schools have a long and storied tradition with basketball. A list of the colleges in the Big East is given in appendix I.

Data was gathered for attendance on Big East basketball games for the previous three seasons, through the 2010-11 campaign. Games include both conference and non-conference games played at the home court of Big East Schools. In conjunction with game attendance, attributes of the colleges themselves, local area population and income per capita, and betting market data on the point spread and total were gathered for each team and game.

The null hypotheses we test are that fans prefer uncertainty of outcome in college basketball and that they prefer more scoring to less. These are directly tested by including the point spread and the total as independent variables in the regression and testing for statistical significance and sign of the coefficient. In addition, factors such as university enrollment, average SAT score, population, income per capita, and other control variable are included and their impact on game attendance is explored.

This paper is organized as follows. Section II presents a background literature review on uncertainty of outcome and game attendance. Section III presents the regression model and its results. Section IV concludes the paper.

Literature Review on Uncertainty of Outcome and Attendance

The effects of uncertainty of outcome as it pertains to game attendance have been studied for a variety of sports around the world. Many studies have attempted to decipher how the uncertainty of outcome impacts attendance in the English Football (Soccer) league. Peel and Thomas (1988) consider betting odds as a good ex-ante measure of uncertainty of outcome, suggesting that departures from efficiency in this market appear to be small. The authors examine attendances in the English Football League for the 1981-1982 seasons, and conclude that fans appear to enjoy uncertainty of outcome, as proxied by betting odds, but also prefer to attend games with good teams.

Peel and Thomas (1992) also studied English Football in the 1986-87 seasons, concluding that fans do not wish to attend games with very high odds on the favorite. In addition, Peel and Thomas (1992) found that fans enjoy when the home team is favored, meaning that, all else equal, fans would prefer to see a close game in which the home squad prevails. Expected goals scored, proxied by the betting market over/under (total) was also shown to have positive and significant effects on attendance. This illustrates a clear preference for more scoring compared to less.

Forrest and Simmons (2002) researched the 1997-98 seasons and found support that uncertainty of outcome helps to increase attendance. Using betting market odds and correcting for behavioral biases in the market, Forrest and Simmons (2002) find that fewer fans attend games when the adjusted odds on the favorite are quite high, while more fans attend games as the odds on the favorite fall.

All three divisions of the Scottish Football League were studied by Peel and Thomas (1996) for the 1991-92 season using betting market odds as a measure of uncertainty of outcome. Based on the model of Theil (1967), maximum uncertainty of outcome is found to occur when the probabilities of a home win, road win, and draw are all equal. The authors conclude that fans do not have a preference for uncertainty of outcome in Scottish Football.

Buraimo and Simmons (2009) also show that fan attendance is not influenced by uncertainty of outcome in the traditional expected manner. In a study of the Spanish Primera division, fans attending games prefer less uncertainty of outcome in Spanish Football. Using betting market odds to construct the probability of a home win, Buraimo and Simmons (2009) show that attendance is maximized when there is a high home team win probability or there is a low home team wins probability. Overall, these results concerning attendance reject the uncertainty of outcome hypothesis, as fans do not appear to enjoy expected close matches in the Spanish Primera Division.

The sport of Rugby has also attracted considerable attention in terms of the testing of uncertainty of outcome on attendance using betting market odds. In a study of British rugby league matches in the 1994-95 seasons, Peel and Thomas (1996) determine that outcome uncertainty plays a significant role in the determination of attendance for rugby. Fans of rugby appear to enjoy uncertainty of outcome as betting market odds on this sport have a negative and significant effect on attendance. Therefore, as the odds on the favorite increases, fewer fans attend these games.

Carmichael, et al (1999) also found statistical evidence of the uncertainty of outcome being important as it relates to rugby attendance. Using the 1994-95 season of English Rugby League fixtures, the authors find that attendance is lower for games with longer match odds. This means that as the odds on the favorite increases, fewer fans attend rugby matches. Again, this suggests that fans do enjoy uncertainty of outcome in this sport. In addition, Carmichael, et al (1999) also examined the pre-season odds of each team to win their division and found that teams which were longshots to win their divisions had lower attendance, while teams which were favorites or had shorter odds to win the division had higher attendance at their matches. This result also supports the notion of the importance of uncertainty of outcome as fans prefer to watch teams which have a chance to win their division and overall title.

For rugby in New Zealand, however, uncertainty of outcome was not shown to have an impact on attendance. In a study of the Super 12 Rugby league for the 1999-2001 seasons, Owen and Weatherston (2004) used betting odds as a proxy for uncertainty of outcome. Based on attendance at individual matches, the authors find little evidence that uncertainty of outcome has any effect on attendance.

Uncertainty of outcome in cricket matches was studied by Morley and Thomas (2007). In an examination of the limited overs cricket matches for 1996 and 1997, the authors found that uncertainty of outcome apparently was not preferred by fans. As the odds on the favored team increased, more fans actually attended the games.

In the major North American sports, the relationship between attendance and uncertainty of outcome has also been studied and the results have generally been consistent. Welki and Zlatoper (1999) examined the National Football League. They used actual game attendance as a proportion of total tickets sold as their dependent variable to capture both the number of people in attendance and those with tickets who chose not to attend the game. The points spread and points spread squared were used as proxies for uncertainty of outcome in NFL games and found support for the uncertainty of outcome hypothesis. Games with smaller points spreads, all else equal, were shown to generate higher attendance.

In Major League Baseball, Knowles, Sherony, and Halpert (1992) studied the 1988 National League season. They used betting market odds to construct the probability of a home team win, which served as a proxy for uncertainty of outcome within the games. The authors found that uncertainty of outcome, as measured through the odds, was a significant determinant of attendance. This led to their conclusion that the maximization of fan attendance would occur when the home team was a slight favorite. Rascher (1999) studied the 1996 baseball season and found similar fan preference for uncertainty of outcome. In general, large favorites were not found to be popular with the ticket-buying baseball audience. Like Knowles, et al (1992) slight home favorites outperformed other favorites at the gate.

Lemke (2010) found the opposite result for the 2007 Major League baseball season. The betting market odds on baseball games was included in an attendance model and used as a measure of expected win probability, reflecting uncertainty of outcome. This variable was included alongside many other explanatory variables, many directly correlated with the betting market odds, and the opposite result compared to the other baseball studies was found. Lemke (2010) found that fans in the 2007 season preferred a lack of uncertainty of outcome as attendance increased as the probability of the home team winning increased. This result could represent a fundamental change in the way baseball fans viewed their sport, or the relationship between the betting market odds and other explanatory variables may confound this result.

In relation to the study of basketball, Mills and Fort (2011) studied the NBA, along with the NFL and NHL, and found that the effect on attendance of uncertainty of outcome differs widely across these sports. He concludes that there is little evidence supporting the uncertainty of outcome hypothesis. Rascher and Solmes (2007) suggest that while uncertainty of outcome in basketball is important, fans in attendance prefer to see their team win. They suggest that fans prefer situations where the home team is expected to win two-thirds of the time, compared to other possible win probabilities.

Overall, the results relating uncertainty of outcome to game attendance appears mixed. This could be a result of the time and actual costs of attending a live sporting event plays a key role in what fans desire, whether that is for an easy win by the home team to allow for celebration before, during and after the game, or if they would prefer a close contest. A less ambiguous market might be the study of uncertainty of outcome as it relates to television audiences, where the cost of watching the game, or switching it off, is much lower. In addition, with many sports in relation to television, other games may appear on television at the same

time, driving fans to watch the most competitive games. Forrest, Simmons, and Buraimo (2005) and Paul and Weinbach (2007) are a couple of examples where TV audiences and uncertainty of outcome are examined.

Regression model of Big East Basketball Attendance

The basic regression model for this study uses individual game attendance for each home game for Big East basketball games as the dependent variable. The independent variables consist of control variables for the college and local city, days of the week, months of the season, and variables representing team success and our measures of uncertainty of outcome and expected scoring. The regression model is presented in equation 1 below.

$$\text{Attendance}_t = \alpha_0 + \beta_1 (\text{Stadium Capacity}) + \beta_2 (\text{Population}) + \beta_3 (\text{Income Per Capita}) + \beta_4 (\text{Enrollment}) + \beta_5 (\text{Enrollment}^2) + \beta_6 (\text{SAT Score}) + \beta_7 (\text{Sunday}) + \beta_8 (\text{Monday}) + \beta_9 (\text{Tuesday}) + \beta_{10} (\text{Thursday}) + \beta_{11} (\text{Friday}) + \beta_{12} (\text{Saturday}) + \beta_{13} (\text{December}) + \beta_{14} (\text{January}) + \beta_{15} (\text{February}) + \beta_{16} (\text{March}) + \beta_{17} (\text{Win Percentage}) + \beta_{18} (\text{Home Favorite Dummy}) + \beta_{19} (\text{Absolute Value of Points spread}) + \beta_{20} (\text{Total}) + \varepsilon \quad (1)$$

The variables representing the college and the city in which it resides consist of a variety of factors which are likely to influence attendance. The population variable represents the population of the local city where the university is located. Population has been shown to have different effects on attendance in different sports at a variety of levels. It is likely that more populated areas will attract more fans, due to the presence of more people who might be college basketball fans, but larger areas also contain more entertainment options, which could decrease attendance. Income per capita is the income of the local city. The impact of income per capita on attendance has varied across different sports and settings. Although it may seem likely that cities with higher income per capita figures would attract a greater number of fans, it is possible that college basketball could be an inferior good, where higher income areas actually lead to fewer fans in attendance. Like the attendance variable described above, this is likely due to other entertainment options available in a city when it is wealthier overall.

The overall size of the student body is likely an important determinant of attendance for college sports. Given the difference in size of the universities in the Big East conference, we ultimately settled upon using both enrollment and enrollment squared to represent the size of the university. We would expect attendance to increase with enrollment, but it may decline for the largest of schools, again, given other entertainment activities available on campus. In a similar vein, the size of the arena is also included as an independent variable to account for the arena the games take place in. In previous research, most of the stadium capacity variables have been shown to have a positive effect on attendance.

Other variable included with the college variables was average SAT score. Given its availability, along with the other independent variables noted above, it was included in the

regression to determine if the overall quality of the student has any impact on game attendance. This variable could reflect something about preferred sports of different levels of intellectual ability or it could reflect something to do with the opportunity cost of studying compared to attending a college basketball game. In any case, we thought it could provide some insight and interesting results if included in the model.

The next set of variables included in the regression model as independent variables account for the day of the week and the month of the season. Wednesday is the excluded categorical dummy for the days of the week and November, the first month of the season, is the excluded category for the months of the season. Due to the opportunity cost of the fans' time, weekend games are likely to be more popular than weekday games. With respect to the months of the season, due to the excitement of the NCAA basketball tournament, games are likely to be more interesting to fans as the end of the season approaches. Therefore, we expect the later months of the season, February and March, to have more fans in attendance at games than earlier months of the season.

The last group of variables represents the key elements of this study, our measurements of uncertainty of outcome, team quality, and expected scoring. Our measure of uncertainty of outcome is the points spread, taken from betting market data. The points spread on college basketball games have generally been shown to optimal and unbiased forecasts of game outcomes. Therefore, this variable serves as a proxy for expectations about individual game outcomes. We model the uncertainty of outcome with the points spread in two ways. Rather than differentiating between favorites and underdogs with either negative values (representing home favorites) and positive values (representing road favorites), we choose to use the absolute value of the points spread as our measure of uncertainty of outcome, couple with a simple dummy variable for the existence of home favorites. The home favorite dummy captures that fans are likely to expect that the home team will win the game, while the absolute value of the points spread represents the expected closeness of the contest. Given that games with smaller points spreads could feature match-ups between two teams of high or low quality, the win percentage of the home team, going into that game, is included as an additional determinant.

To test if fans are more likely to attend games that are expected to be high-scoring, we include the betting market total as an independent variable. Scoring has been shown to be popular in many different sports, as the total has been shown to impact both attendance and television ratings. If fans prefer games that are expected to be high-scoring, higher betting market totals should lead to more fans in attendance.

Regression results are presented in table 1 below. Coefficients are noted and t-stats are shown in parentheses. Statistical significance is denoted by *-notation with * being significant at the 10% level, ** being significant at the 5% level, and *** being significant at the 1% level.

The model revealed mostly expected results as it relates to the control variables related to the home team college and surrounding area. The capacity of the stadium was shown to have a positive and significant effect on attendance. Larger venues appeared to be more popular for

college basketball games than smaller venues. The population of the local area was shown to have a negative and significant effect on game attendance as was income per capita. Both of these statistically significant results likely stem from larger and wealthier cities are likely to have more entertainment possibilities available to their populations. College basketball appears to be an inferior good for the schools of the Big East, which include teams in the big cities of New York and Chicago, and more heavily populated areas also draw fewer fans to the stadium.

The enrollment of the college has a non-linear effect as it relates to college basketball game attendance. Larger colleges and universities attract greater crowds up to a point, then decline with very large institutions. Again, this is likely to be a function of substitution effects into other forms of entertainment. At smaller AQ (Division I) schools in the Big East, college basketball appears to be a prime draw for the students at the university. As the size of the college grows, however, more entertainment options are likely available to the students and attendance falls by a small, yet statistically significant, amount. SAT score was shown to have a positive and significant effect on attendance. Although relatively small, it appears that colleges with higher SAT scores draw a statistically significant number of additional fans. Basketball, at the Big East level, appears to be more popular the better the student body scored on its college aptitude test.

The days of the week and month of the season variables produced the anticipated results. Saturday was a very popular game for Big East basketball, with over 1500 more fans attending games on Saturday, compared to the omitted daily category of Wednesday. Attendance in college basketball was also shown to increase over the course of the season, with positive and significant effects on attendance seen in February and March. The nature of college basketball, with a regular season, followed by conference tournaments, followed by the highly-popular NCAA tournament, likely leads to these large increases in attendance at the end of the season as teams vie for championship tournament bids.

Fans of Big East college basketball also appear to be quite sensitive to the performance of the home team. Local fans appear to attend more games the better the team is performing. This is evidenced by the positive and significant effect of win percentage on attendance, with statistical significance at the 1% level.

In relation to the key variables for this study, the role of uncertainty of outcome and expected scoring, statistically significant results were found for each of the variables. The dummy variable for home favorites was positive and significant at the 1% level and led to 1440 additional fans in the arena if the home team was expected to win the game. The absolute value of the pointspread, our measure for uncertainty of outcome of the game, was found to have a negative and significant effect, also at the 1% level. Fans of Big East basketball appear to enjoy uncertainty of outcome in games as each additional point of the pointspread led to nearly 154 fewer fans in attendance. This result supports the uncertainty of outcome hypothesis, which has not been shown to be universal across sports. In addition, expected scoring appears to play an important effect when it comes to attendance for Big East basketball. For each additional point of the total, the betting market proxy for expected scoring in the game, 65 more fans attended

the game. This result implies that fans of Big East basketball appear to prefer more scoring to less. This result is similar to what has been shown previously in the literature for other sports.

Conclusions

The role of uncertainty of outcome and expected scoring on attendance was investigated for Big East Conference college basketball. Fans of Big East basketball were shown to prefer uncertainty of outcome in their sport as the pointspread, our proxy for uncertainty of outcome, was shown to have a negative and significant effect on attendance. The betting market total on Big East basketball games, our proxy for expected scoring, was shown to have a positive and significant effect on attendance. This implies that fans of Big East basketball prefer seeing higher-scoring games compared to lower-scoring games and choose to purchase more tickets for games that are expected to be higher scoring.

In other results from the regression model, attendance was shown to increase based upon the win-loss record of the home team, fans preferred the home team to be expected to win the game (proxied by a home favorite dummy variable), weekend games were shown to be more popular than weekday games, and more fans attended games as the season approached “March Madness”.

In relation to college and local area attributes, the size of the local population and local income per capita were shown to have a negative relationship with individual game attendance. These results likely stem from larger metropolitan areas which contain colleges in the Big East having more entertainment possibilities in relation to sports and other activities. Therefore, college basketball is revealed to be an inferior good in this sample as people substitute into other entertainment activities in larger and wealthier areas.

The enrollment at the university was determined to have a non-linear relationship with game attendance. As enrollment increases, more people attend college basketball games. There reaches a point, however, where larger universities see a decrease in attendance as the enrollment squared variable was shown to have a negative and significant effect. It is likely that this result also stems from other available entertainment opportunities on larger campuses compared to smaller campuses. As an interesting aside, average SAT score was shown to have a positive and significant effect on attendance for basketball. This result could state something about the types of fans who enjoy this sport and could make for an interesting avenue of future research.

Overall, the study of attendance for Big East college basketball was shown to support the uncertainty of outcome hypothesis. In addition, the notion that fans prefer more scoring to less was also confirmed in this sample. Potential avenues for future research in this sport include a study of more conferences and colleges to attempt to determine if the impact of the uncertainty of outcome hypothesis is consistent across NCAA basketball.

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Tables

Table 1: Regression Results

Dependent Variable: Game Attendance

Independent Variable	Coefficient (t-stat)
Intercept	-13584.12*** (-2.7945)
Stadium Capacity	0.4232*** (11.4299)
Population	-0.0004*** (-3.4652)
Income Per Capita	-0.0589** (-2.3084)
Enrollment	0.3041*** (2.9760)
Enrollment Squared	-0.000008*** (-3.5397)

SAT Score Average	2.7934*** (2.7920)
Sunday	-143.1628 (-0.2293)
Monday	-148.8490 (-0.1932)
Tuesday	108.0661 (0.1750)
Thursday	-327.8931 (-0.4898)
Friday	86.1739 (0.0917)
Saturday	1597.165*** (2.9152)
December	863.0063 (0.4888)
January	2821.838 (1.4367)
February	3617.721* (1.8249)
March	5491.491*** (2.6176)
Win Percentage	7465.365*** (4.1391)
Home Favorite Dummy	979.6954** (2.0552)
Pointspread (Absolute Value)	-100.5611** (-2.4501)

Total	42.8726**
	(1.9796)
R-squared	0.4642

Appendix

Appendix I: Big East Schools 2008-09 to 2010-11

Team
Cincinnati Bearcats
Connecticut Huskies
DePaul Blue Demons
Georgetown Hoyas
Louisville Cardinals
Marquette Golden Eagles
Notre Dame Fighting Irish
Pittsburgh Panthers
Providence Friars
Rutgers Scarlet Knights
Seton Hall Pirates
South Florida Bulls
St. John's Red Storm
Syracuse Orange
Villanova Wildcats
West Virginia Mountaineers

Georgia-Pacific: Water, Carbon & Waste

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Abstract

This paper discusses the principle of circularity as it relates to water, carbon and waste. It presents several examples but focuses on the efforts of Georgia-Pacific that align with the principle of circularity.

Body

Circularity is a theory of sustainability that creates a systemic, cyclical approach to production. There are three critical pieces to the principle of circularity: water, carbon and waste (Visser, 2011). The object of circularity is to redefine the way consumption occurs. Patagonia, an outdoor outfitter, is an example of a company that has redefined the way it sees consumption. After the recession in the early nineties, the owner of this company realized that “growth for growths sake” is bad for the environment. Now the company only creates new products when the demand is driven by the consumer (Visser, 2011). This is the first step in making consumption, and in turn, production, a cyclical process as opposed to a linear one. Currently we live in a culture of linear consumption. Consumers purchase products, use them for a period of time and then discard them for the next new product. Lots of these products go to the landfill. In a circular culture of consumption the product would be broken down into different components and repurposed for other products or processes (Hislop & Hill, 2011). This illustrates the basic principle of circularity.

There are other theories of sustainability that are similar to circularity: industrial ecology theory and eco-efficiency. Industrial ecology has six principles: industrial metabolism, dematerialization, life cycle analysis, energy systems, biosphere interface, and policy innovation. The effect of these principles is to bring balance and harmony with nature to the industrial economy. There would be closed industrial systems that replaced linear processes with circular processes. These processes would be supported with technical and managerial innovations and leadership planning would flourish (Hawken, Lovins, & Lovins, 1999). In the nineties, the theory was eco-efficiency, or how to produce more with less and maintain similar quality. The focus was on natural capital such as water, minerals, oil, trees, fish, soil and air. Eco-efficiency contained four principles: resource productivity or lean manufacturing, bio mimicry or circular manufacturing, service and flow instead of acquisition and consumption (more like a service leasing model), and finally investment in natural capital (Hawken, Lovins, & Lovins, 1999). Today we have the theory of cradle to cradle manufacturing that says waste is only acceptable if it can be used again in the system (Visser, 2011).

Several proposals to conserve our natural resources and promote a circular economy have been researched. The Green Alliance recently published an article on circularity that promoted the conservation of phosphorus, metals and water (Hislop & Hill, 2011). Visser (2011) promotes carbon, waste and water as the three components most needed to reach a circular consumption economy. It seems that many of these theories from both concepts are becoming part of the global sustainability conversation. Hislop and Hill (2011) believe phosphorus is critically important because it is required in the agricultural industry. Phosphorus is a non-renewable resource that is used in fertilizer throughout the farming industry. They point out that there is a lack of knowledge about how long the reserves of phosphorus may last and that there is no awareness of the considerable waste of this mineral. Other sources of phosphates include manure, human waste, and food and crop residues. The principle of circularity would take the waste from humans and animals and extract the phosphorus eventually repurposing it back into agriculture (Hislop & Hill, 2011). Developing a plan to either levy a tax on phosphorus or implement a program that takes other sources of phosphorus and repurposes them is a way to create circularity in the economy.

Water is another resource that is taken for granted both in personal consumption and in manufacturing. There are a number of suggestions for repurposing water used to make both food and other products. Companies are starting to become more aware of their use of water. One example is Sodexo, a large food service company, who has just recently published their first ever sustainability report. The report acknowledges that it is far easier for a manufacturing company to track and improve sustainability efforts than it is for a company that is a provider of goods, particularly in food service. However, Sodexo began using a software program in 2009 that allowed it to establish a base line for tracking and measuring their progress now and in the future. The company was able to acknowledge in their first year that they increased the purchase of responsibly grown coffee and certified sustainable seafood. Future plans include operations and improvements with regard to their energy, carbon, and water goals for both client sites and operations sites. Although part of this initiative is driven by a shareholder resolution from the California State Teacher's Retirement System, it is still a step towards corporate social responsibility by a company that is not in manufacturing (Redell, 2011). Hislop and Hill suggest the need for a change in the understanding of how we manufacture and use products with water. The goal is to challenge companies to think more about the beginning and middle of the process of manufacturing in order to begin the circularity conversation. In Sodexo's case it is thinking about the impact their services have on water, waste and carbon that started the conversation.

Georgia Pacific (GP) is a manufacturer of tissue, pulp, paper, packaging and building products. GP has for many years been a company that is concerned about the environment and its effect on it. Beginning in 1930, GP has been on the leading edge of new innovations in the paper business. One of their first automatic dispensing systems was for paper towels for public consumption. They are still making these kinds of devices today. They just recently launched the enMotion paper towel dispenser that is touch-less and controls the amount of paper dispensed. GP is also heavily involved in forestry conservation and has over the years donated forest land back to states for preservation and started pine forests to teach sustainable logging

and harvesting (Georgia-Pacific). GP is an example of a company that has a sustainability strategic plan that encompasses all levels of the company from the CEO on down.

Georgia Pacific's sustainability statement says:

"GP creates long-term value by using resources to provide innovative products and solutions that meet the needs of customers and society while operating in a manner that is environmentally and socially responsible and economically sound." (Georgia-Pacific)

In addition Georgia Pacific has three dimensions to their sustainability model: social, environmental and economic. The social and environmental dimensions pledge to make people's lives better through the products they make while supporting the communities where they live and work. They also pledge to maintain quality work environments and to source responsibly by using resources wisely, complying with laws, and minimizing the impact of operating facilities while reducing the adverse impact of their products already in use. The economic dimension is the last piece to the sustainability statement. This pledge says GP will maintain profitability, manage the cost to customer and consumer, create preferred products and positively impact their communities through local purchases of goods and services, taxes and community support. As a paper company GP should be a responsible steward of two important resources: water and timber. The company has recently launched two products that are designed to meet the needs of the consumer but also minimize the effect on the environment (Georgia-Pacific).

The first of these products is the Aqua Tube. The Aqua Tube is being launched in the European markets in early 2011. The Aqua Tube is a fully flushable biodegradable bathroom tissue core. The idea was first introduced to the market through a survey of how many people would actually be interested. GP discovered that 80% of consumers would be willing to use the Aqua Tube because it would be convenient. Georgia Pacific figured out a way to make a tube strong enough to hold the toilet paper but dissolve in water. It flushes just like normal bathroom tissue requiring no further use of water, yet it can also be recycled or composted. Of course recycling is the ideal path for the tube. However, since GP discovered through their initial survey that consumers hardly ever recycled the old cardboard tubes flushing was the most logical choice for an environmentally sustainable outcome (Georgia-Pacific).

Another new productive innovation by GP is the PerfecTouch hot cups that are composed of about 80% wood fiber, but can be composted in facilities that have final screening. However, the most significant contribution so far to the principle of circularity by Georgia Pacific is the Reduce, Reuse and Recycle plan that they implemented with the new enMotion dispensers. When the company began replacing all their paper towel dispensers with the new automated ones, they took the old dispensers and recycled each component including taking the plastic and making auto parts. They have repurposed over 20,000 dispensers up to this point (Georgia-Pacific).

There are many examples of companies who are good environmental stewards and there are numerous organizations that are dedicated to the conservation of wildlife, the ocean, rainforests, timberlands and many other important natural resources. Gugliotta (2008) discussed the problem of used tires. This is especially a problem in the United States mostly because of our infatuation with the automobile. Tires are too costly to recycle. The process that is required to retrieve the oil and rubber from the used tire requires more energy than making the tire in the first place. They can be shredded and used for playground cover, mulch and highway backfill, but mostly they create huge dumps that attract vermin and mosquitoes. The article suggests that burning the tires in concrete manufacturing and as industrial fuel may be the most efficient way to get rid of them. Some environmentalist would argue that the pollutants create too much greenhouse gas, but their profile is almost identical to other fossil fuels (Gugliotta, 2008). This is one way to begin thinking about consumption in a circular form as opposed to linear.

Water conservation is another topic that is starting to appear in many research articles and in company sustainability reports. Georgia Pacific has included water in their most recent strategic sustainability plan (Georgia-Pacific). Other companies are also starting to recognize the importance of water in manufacturing and distribution. Thomas Kostigen in his article, "Better Planet: Everything You Know about Water Conservation is Wrong," states that we should be monitoring not just the water we use but the virtual water in our products (Kostigen, 2008). According to Kostigen, food production uses approximately 70% of the water consumed in this country. Perhaps that is why Sodexo has included water in its strategic sustainability plans or why water is also part of the research in Hislop and Hill's article. Water may one day be a bigger commodity than gasoline or wheat, if companies and individuals do not start using it conservatively. Water has a footprint just like carbon does and right now awareness of this footprint is practically non-existent. Consumption patterns in this country affect resources in other countries because every product either contains water or uses water in its manufacturing. Hislop and Hill (2011) suggest creating a water stewardship similar to the timber stewardship. Partly in response to the new water awareness in the sustainability conversations Georgia Pacific has included a water initiative in their most recent strategic sustainability plans. One aspect of this plan is to upgrade and modernize their paper mills and to upgrade machines in the various processing plants so they are more energy and water efficient.

It is apparent that there are corporations that are committed to environmental conservation especially as it affects their bottom line. Some companies such as Georgia Pacific have been fortunate to have leadership that sees the whole picture. Other companies are starting to understand the need to be involved in their companies' environmental footprint. Whether this is driven by the company, consumers or other outside sources it is the way of the future for corporations. Corporations developed products without regard to the environmental consequences for years, however in today's world of scarce resources, conservation and informed consumers that is a luxury that no longer exists. The days of corporations conducting their business out of the watchful eye of someone are long gone. Perhaps ELF (environmental liberation front) actually did accomplish something even if their methods were extreme. They at least raised public awareness about environmental issues. The public has just been slow to react.

Some critics might argue that corporations are designed to create products and provide jobs and report to their stockholders, but that is a limited picture of the world in which they live. Companies should take responsibility for their actions both environmentally and in their business practices. A good business plan should include a good environmental plan as well. It gives investors and partners a sense that the company is responsible and a good choice as a partner or investment. The economic dimension that Georgia Pacific includes in its sustainability dimension is a good example of a company that acknowledges its responsibility to its shareholders but sees that as only one part of its mission in the community (Georgia-Pacific). It is similar to being a well-rounded individual. A well-rounded company will have a business plan, an environmental plan and a philanthropic plan and a good leadership team can make all those plans work together.

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IMPLEMENTATION OF AND RELATIVE SATISFACTION WITH GASB STATEMENT NO. 34

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Abstract

This is a study of the implementation of and relative satisfaction with the Governmental Accounting Standards Board (GASB) Statement No. 34 by 15 of the first 23 public school districts in the nation to implement GASB Statement No. 34. According to school district financial officers (treasurers), GASB Statement No. 34 is not cost effective and there is little evidence that it has improved the understanding of the annual financial reports of the school districts by citizens and school board members – two of the user groups of annual financial reports identified by GASB.

Introduction

Each year, governments of 50 states and 3,033 counties, 19,492 municipalities, 16,519 townships, 13,051 independent schools districts, and 37,381 special districts and other special purpose governments nationwide (Granof and Khumwala, 2011) are required to issue an annual financial report. The annual financial report presents the financial condition of the government as of the last day of its fiscal year and the operating results for the fiscal year. The annual financial report's structure is based on fund accounting, an idiosyncratic form of accounting not used in the private sector. Fund accounting has been a requirement in government for 75 years and was in use in some large cities, such as New York, for nearly two decades before that. Thus, the annual financial reports have remained essentially the same for generations.

Over the years, the reaction to major events and issues, such as the insolvency of New York City during the 1970s, some changes have been made in what is accounted for and reported on. But by and large, neither governmental accounting nor annual financial reports have changed dramatically since the requirements for them were first set in the mid-1930s.

As the decades passed, there was a growing sense of dissatisfaction with the financial reporting by these government entities. Critics asked why government financial reports could not be more like those of publicly traded companies. Because governments used fund accounting, it was difficult to get an overall picture of the financial condition of government. For example, how much did a program or service cost, how much revenue did it generate, and how much of a subsidy did it require to operate. Because modified accrual accounting, rather than full accrual accounting, was used for government funds, the focus was short-term, rather than long-term. Fixed assets were not capitalized and depreciated to recognize their cost over their economic lives. Thus, it was difficult to get a sense of whether a government was operating with fixed assets that were in prime condition or those that were on their last legs. Governments are

controlled by the amounts that they are budgeted, yet a meaningful way of benchmarking these amounts was lacking in the financial reports. The Governmental Accounting Standards Board (GASB) identified citizens, along with the financial community, and persons with legislative and oversight authority over government, as the primary users for government financial reports. Despite this, the financial reports will filled with a plethora of financial statements, but contained little if anything to explain them in terms that a layman might understand.

In 1999, after years of studies and a three-year delay in releasing the financial version, GASB released Statement No. 34, *Basic Financial Statements -- and Management's Discussion and Analysis -- for State and Local Governments*. The 403-page document, at various times, modifies, amends, replaces, or adds to the existing codification requirements for governmental accounting and financial statements. GASB Statement No. 34 attempts to address all of the criticisms of government financial statements that we previously noted.

The deadline for implementation of Statement No. 34 was phased in over three years, depending on a government's or school district's total annual revenue for its first fiscal year ending after June 15, 1999. Those with revenues of \$100 million or more were required to implement Statement No. 34 for their first fiscal year beginning after June 15, 2001. Those with revenues of at least \$10 million but less than \$100 million were required to implement Statement No. 34 in their first fiscal year beginning after June 15, 2002. Those with total revenues of less than \$10 million were required to implement Statement No. 34 in their annual financial report for their first fiscal year beginning after June 15, 2003.

Research Questions

What was the experience of the first public school districts in the nation to implement GASB Statement No. 34? What was their relative level of satisfaction with GASB Statement No. 34?

Methodology

The research involved interviewing the treasurers (non-elected chief fiscal officers) of 15 of the 23 public school districts in Ohio that implemented Statement No. 34 early to determine their experiences in implementing Statement No. 34. Statement No. 34 is the largest change in the history of American government accounting and financial reporting. It is debatable which size public school district or government faced the greatest challenge in implementing Statement No. 34. The small-sized public school districts and governments have less complex operations and annual financial reports, and so, in theory, they should face fewer challenges in implementing Statement No. 34.

In many cases, however, smaller school districts and governments have less technical expertise and fewer resources available to implement Statement No. 34. The large-sized public school districts and governments generally have more complex operations and annual financial statements, but often have more expertise and resources available for implementation. However,

it may, in fact, be the medium-sized public school districts and governments that faced the greatest challenge in implementing Statement No. 34; their operations and annual financial reports may not be so simple as the small-sized school districts and governments, nor their access to technical expertise and resources as great as the large-sized school districts and governments.

A problem with obtaining and analyzing information from government finance officers on implementing Statement No. 34 is the diversity of governments. They range from general-purpose governments, such as state, cities, and counties, to special-purpose governments, such as school districts, bridge authorities, port authorities, fire districts, downtown development authorities, water and sewer districts, regional planning authorities, park and recreation districts, and landfill and trash authorities. Not only are the operations of the various types of governments different, the complexity of their finances is as well.

In addition, users of annual financial reports, particularly citizens, have different concerns about the finances of a government, depending on the type of government. The focus in the case of a bridge authority, for example, is likely to be purely whether the bridge can remain open and be properly maintained with the revenues that the bridge authority is collecting. Citizens' concerns with regard to a city might be how many services the city can provide with the available revenues and grants available to it.

With regard to a school district, citizens are interested in whether district revenues are being spent effectively and efficiently so that students do well on statewide achievement tests and college entrance examinations; if certain basic services such as busing, and programs such as school lunch programs, are provided to students; and whether enrichment programs and services, such as classes in various foreign languages, speech therapy services, and programs for challenged students, are available.

Citizens are also interested in whether the district's finances require tax increases to improve students' performance on statewide achievement and college entrance examinations, to enable the district to provide various programs and services, and to construct new school buildings and renovate older buildings. Therefore, study results are likely to be more meaningful if the study is confined to one type of government.

Studies of one type of government among states may also be problematic because of differing definitions and structures of governments within the same category in different states. State laws and requirements for those governments generally vary from state to state as well. Therefore, the validity of study results may be improved by confining the study to one type of government in one state.

In 1999, Berea (Ohio) City School District became the first public school district in the nation to implement Statement No. 34. In the next two years, an additional 22 Ohio public school districts implemented Statement No. 34, although few of the remaining 13,028 independent public school districts or other 76,475 general-purpose or special-purpose governments nationally did so during this period. The relatively large-scale early

implementation of Statement No. 34 by Ohio public school districts provided an opportunity to study implementation by one type of government within one state, thus eliminating some of the problems noted earlier.

The treasurer of each of the 23 Ohio public school districts was identified and a letter mailed to each treasurer at his or her local school district. The letter explained the nature of the study and requested the treasurers' participation in the study. Attached to the letter was a copy of the interview questions, which the treasurers were asked to review; a form granting their consent to participate in the study, which they were asked to sign and date; and a stamped, addressed envelope, in which they were requested to return the consent form. To gain fuller participation in the study, the researcher selected the methodology of conducting telephone interviews so they could be fit into the treasurers' busy schedules and rescheduled on short notice when crises arose that made the treasurers unavailable at the time originally scheduled for the interview. The interview questions were mailed in advance to: (a) increase the likelihood of participation of selected study subjects by removing concerns that the interview would be highly technical and/or time-consuming, (b) obtain more accurate answers by allowing the school treasurers time to consider the questions and consult any records necessary to answer the questions, and (c) manage the interview so that it was focused.

Within a week of the mailings, the researcher attempted to contact each of the 23 treasurers by telephone and/or e-mail. The contact was made to schedule an interview with those treasurers who agreed to participate in the study and to answer any questions that they might have. The researcher was able to contact 18 of the 23 treasurers, 15 of whom agreed to participate in the study. Five of the 23 treasurers did not respond to the letter inviting them to participate in the study nor the researcher's telephone calls and e-mails.

Of the 15 school districts that participated in the study, four of the treasurers were not the treasurer of the school district when GASB Statement No. 34 was implemented. However, they were included in the study because they were able to provide information on the post-implementation effects of GASB Statement No. 34 on the school districts' operations and how Statement No. 34 information was being used in the school districts. These four treasurers were also asked about the implementation of GASB Statement No. 34 in their school districts because they were the custodians of the school districts' accounting records for the period prior to, during, and following implementation of GASB Statement No. 34.

For three of these four school districts, the person who was treasurer at the time of implementation was located and agreed to participate in the study. These three treasurers provided information about implementation and the effects and use of GASB Statement No. 34 information during the time that they remained with the school districts following implementation. In two of the school districts, the current school treasurer declined to participate because he or she was not in that position when GASB Statement No. 34 was implemented, but referred the researcher to the persons who were the school treasurers at the time of implementation. Both of the former school district treasurers agreed to participate and were included in the study.

Once the treasurers granted their written consent to participate in the study and an interview was scheduled, each of the individual treasurers was contacted at the scheduled time for the telephone interview. The treasurers were asked the questions that were attached to the letter announcing the study. The treasurers were encouraged during the interviews to elaborate, wherever possible, to provide specific examples, details, and their analysis.

Following the interviews, the researcher transcribed his interview notes. Parts of some of the treasurers' answers were quoted or paraphrased to elucidate particular points.

This study is limited in that it was done with one type of government in one state among school districts that had implemented GASB Statement No. 34 by 2002. It is a qualitative, rather than quantitative, study.

Findings

Question 1

To the question: "Has Governmental Accounting Standards Board (GASB) Statement No. 34 brought about any changes in the way that your school district prepares its comprehensive annual financial report (CAFR)?" treasurers of 7 of the 15 school districts in the study said that the way they dealt with fixed assets changed. The changes ranged from reviewing and appraising all fixed assets, to including and capitalizing major fixed assets for the first time, to improving the thoroughness and accuracy of fixed assets, to depreciating fixed assets for the first time. Seven districts reported that they increased the threshold value for reporting fixed assets, several on the advice of the Local Government Section (LGS) of the State of Ohio Auditor's Office, to simplify their financial reporting. The lowest threshold prior to the change was \$100 and the highest threshold after the change was \$2,000, according to the treasurers. State law in Ohio requires school districts to set their asset reporting threshold to capture at least 80% of the value of all the district's assets. Two districts that did not increase their thresholds in the year of implementation had increased them several years before. One school district that did not increase its threshold chose to keep it at the same level to maintain closer scrutiny of assets. Another district, which increased its threshold for financial reporting purposes, maintained its previous lower threshold for internal control purposes.

Other changes noted by the treasurers were reporting assets by function as well as fund, reporting only major funds individually, including a Statement of Net Assets and Statement of Activities in the CAFR, restating prior year financial information, including an extra step in the preparation process to convert cash-basis financial statements to full-accrual statements, and spending additional time determining the proper reporting of various federal and state revenues. Two districts chose also to implement a CAFR, rather than produce general financial statements, in the year that they implemented GASB Statement No. 34. The treasurers said that they believed instituting a CAFR was a logical progression given the amount and type of information that they were required to report under GASB Statement No. 34.

To the question, “Does your school district keep two sets of books, restate financial information, or do anything else that it did not do prior to GASB Statement No. 34?” treasurers in all 15 districts said they do not keep two sets of books. All of the districts converted their cash-basis financial statements during the reporting process, as they had been doing since Ohio mandated that school districts use generally accepted accounting principles (GAAP) when reporting their financial statements sometime in the 1990s. Several of the treasurers in the study said that they implemented GASB Statement No. 34 because the Ohio Auditor’s Office offered to do the extra work in the conversions that GASB Statement No. 34 would require for little or no extra cost in the first year if their districts would implement early. Two treasurers noted that though they do not keep two sets of books for financial reporting, they do keep special files or a box in which they place records throughout the year that will be needed in the conversion process.

Thirteen of the districts reported using LGS to convert their cash-basis financial records. One treasurer, a former LGS employee, did the conversion with the assistance from LGS officials; another used assistance from LGS for the conversion; and the third used a public accounting firm. The State Auditor’s Office determines whether a school district must use the Auditor’s Office Audit Division for the school district’s annual financial audit or whether it will be “released” to seek an auditor from the public accounting sector. However, school districts may do conversions themselves rather than hire LGS. Several treasurers noted that in addition to doing their conversions, LGS provide the information the treasurers needed to write the Management Discussion and Analysis (MD&A).

Question 2

In response to the question, “Has GASB Statement No. 34 resulted in any changes in the use of resources or amount resources used in preparing your school district’s CAFR?” all the treasurers said that there had been some increase in resource use. The estimates of extra time the treasurers and their staff spent on the annual financial reports as a result of GASB Statement No. 34 ranged from a few hours to 400 hours. Seven districts reported that the number of extra hours was either small or unestimatable. Two districts reported approximately 20 hours of additional work, two districts reported 40 hours of additional work, one district reported 120 hours of additional work, and two district reported up to 400 hours of additional work. These hours were only for school district employees and did not include the extra hours spent by LGS or an accounting firm in doing the conversions. Most of the extra hours were spent on fixed asset records, though two treasurers estimated they spent 20 hours gathering information for and writing the MD&A. The treasurers said that most of the extra time spent on the time was their own, rather than staff’s, noting that the treasurers are not compensated for extra hours worked.

All of the districts reported increased costs for the audit of their financial report in the year of implementation. These extra costs resulted from additional time auditors spent auditing the financial information required in the annual financial report by GASB Statement No. 34. The treasurers generally estimated the extra costs to be \$3,000 to \$4,000, though two estimates put the extra costs at \$6,000 and \$9,000, respectively. Another district spent an additional

\$2,500 in the year of implementation for appraisal of its fixed assets to accurately report its assets and depreciation as required by GASB Statement No. 34.

In response to the question, “Have the benefits derived from GASB Statement No. 34 been sufficient to justify the costs associated with it?” treasurers in 10 districts said, “No.” These treasurers said that the information, including the MD&A, is not read by the public, and seldom, if ever, read by school district boards or school district administration. One treasurer said that the treasurer’s job is to help the school board and district administration, but GASB Statement No. 34, by increasing the district’s cost of conversion and audit each year without providing useful information, was taking away from that effort.

Three of the treasurers concluded that GASB Statement No. 34 might lower the interest rate for bonds that their district might issue, but said that they still did not consider GASB Statement No. 34 cost effective. One district used its compliance with GASB Statement No. 34 and an unqualified auditor’s opinion to gain voter passage of a millage issue, but the district’s treasurer said, in spite of that, GASB Statement No. 34 is not cost beneficial. In another school district, the treasurer said that the district might be able to use GASB Statement No. 34 information in future millage campaigns, but even so, GASB Statement No. 34 is not cost beneficial. One treasurer said that including GASB Statement No. 34 information in a school district’s annual report makes the school district appear more progressive and school treasurers, as a group, more professional. Despite this, GASB Statement No. 34’s cost still outweighs its benefits, the treasurer said. Several treasurers mentioned that cash-basis accounting is what school boards, the public, and bargaining units are accustomed to, and they have little knowledge of or concern about any other type of financial reporting.

Two treasurers questioned the wisdom of school districts depreciating fixed assets, noting that depreciation lowers the net income of business, and thus decreases their income tax liability, but school districts are government entities and, therefore, have no income tax liability. Several treasurers also questioned the meaningfulness of showing depreciation of school buildings in use that, in some cases, are between 50 and 100 years old.

Treasurers in five districts said that GASB Statement No. 34 information is cost beneficial. All of them said that the MD&A makes the most important financial information about a school district understandable to and convenient for a reader without a financial background, as well as for readers with a financial background. One treasurer said that another positive contribution of GASB Statement No. 34 is the requirement for a Statement of Net Assets and Statement of Activities, which provides important information about a school district’s operations during the past year and indicates the direction in which its finances are headed. Another treasurer noted that the district’s school board liked the fact that some of the financial statements prepared according to GASB Statement No. 34 were in a format similar to that used in business. The treasurer said that the reporting of program revenue and costs could be improved in Ohio by redefining the function codes used to capture the information.

One treasurer said that the criticism that GASB Statement No. 34 information is not being used falls on the shoulders of school treasurers, at least to some extent. The treasurer said that school treasurers can take steps to publicize the information that GASB Statement No. 34 provides and educate potential readers on how to better read and understand the information. The treasurer said that some school treasurers have little understanding of GASB Statement No. 34. They let LGS or an accounting firm do as much of the conversion to GAAP as possible to minimize their involvement with it. When the school district's annual report is issued, some treasurers allow the report "to be put on the shelf" without making the school board, school district administration, or public aware of the information in the report or its significance. A treasurer in another school district noted that no one in the school district looks at the district's annual report, except the treasurer, who understood it in the pre-GASB Statement No. 34 format. She, therefore, sees no improvement in the report with the implementation of GASB Statement No. 34.

Question 3

In response to the question, "Have there been changes in your school district's financial record keeping as a result of GASB Statement No. 34?" treasurers in four districts said that there were no changes. Treasurers in all the other 11 districts said that there had been changes in their fixed asset record-keeping as a result of GASB Statement No. 34. Three treasurers said that there had been major improvements in the accuracy and completeness of their fixed asset records to comply with GASB Statement No. 34. As noted earlier, two districts had fixed assets appraised to improve the accuracy and completeness of their records.

GASB Statement No. 34 requires reporting program revenue and expenditures. In Ohio, this is done by ascribing a function code to fixed assets so that the revenue and expenditures for programs can be captured in the financial records. The cost of depreciation of the same fixed asset may move from one program to another from year to year if the program using the asset changes. As several treasurers noted, the trigger for this change can be subtle. If the asset stays in the same room but the room is used for a different program from one year to the next, the cost of depreciation can move from one program to another. If an asset is moved from one room to another within the same building but the rooms are used for different programs, the cost of depreciation can also move from program to program. As a result of GASB Statement No. 34, several treasurers said that they had made an effort to educate faculty and staff of the need to accurately report the existence and location of fixed assets. Another treasurer had tried to impress the district's janitorial staff of the need to report their moving of assets, such as disks, between rooms or buildings, noting that keeping accurate asset records for four school buildings spread across a 100-square-mile school district is nearly impossible without the help of custodial staff.

Two treasurers said that their districts had changed financial record keeping to better report a comparison of their districts' original budget, final budgets, and actual revenues and expenditures under GASB Statement No. 34. Several treasurers said that reporting original and final budgets in Ohio is problematic because the terms are undefined. In the past, according to

one treasurer, the State of Ohio made budgeting software available to public school districts that updated school district budgets to match actual revenues and expenditures as the school year progressed. Therefore, a school district's budget at the end of the school year was actual revenues and expenditures. Though some school districts have abandoned this practice, several treasurers there is no clear indication of what constitutes the original and final budgets in Ohio. For example, one school district uses the tax revenues certified by the County Auditor as the original budget, its treasurer said. However, the County Auditor certifies revenues that go only into the school district's General Fund, so other revenues, such as federal and certain state grants are not included in the County Auditor's certification. Treasurers said that their districts worked out a solution to what constitutes original and final budgets as best they could. One treasurer noted that including a comparison of the original and final budgets and actual revenues and expenditures had changed the focus from analyzing fluctuations in revenues and expenditures from year to year to a focus on analyzing how well the district predicted its revenues and expenditures at the beginning of the year. Several treasurers said that they could see little reason for this type of analysis, adding that their districts reported only as much budgetary information as required. Only two treasurers said that they, their school boards, or district administrations analyzed the comparison of original and final budgets and final revenues and expenditures.

One school district also changed its record keeping for long-term debt and accrued sick leave as a result of GASB Statement No. 34 reporting requirements, its treasurer said.

In response to the question, "What changes, if any, have there been in record keeping for capital assets?" treasurers from 11 districts said that they had made changes to improve the quality and accuracy of asset reporting.

Two districts that changed their record keeping reported that they had their assets appraised; seven had increased their reporting thresholds to simplify reporting and to improve record accuracy; one went back through school board minutes to capture information on capital improvements to fixed assets (which had not previously been recorded in the district); one sent periodic inquiries to faculty and staff to determine whether assets had been moved to a different location; and one increased internal control over assets to safeguard and preserve the accuracy of asset records. Two years after implementing GASB Statement No. 34, one district decided to update its fixed asset records to simplify future reporting according to GASB Statement No. 34 requirements. The treasurer in another school district said it would increase its fixed asset threshold to simplify record keeping if the process was not so complicated.

In response to the question, "What changes, if any, have there been in record keeping for the declining value of capital assets (depreciation or alternate methods)?" treasurers in four districts said that their districts began depreciating fixed assets for the first time upon the implementation of GASB Statement No. 34.

This suggests that school districts in the "medium" category in total revenue, somewhat in inverse proportion to their student enrollments, were most likely to initiate depreciating fixed assets with implementation of GASB Statement No. 34.

A fifth district had been depreciating food service equipment previously, but began depreciating other assets as well when it implemented GASB Statement No. 34. Four of five treasurers said that their districts began using the depreciation field in the fixed assets software furnished by the State of Ohio when the districts implemented GASB Statement No. 34. The treasurer of a fifth district said the district used a software program purchased from a private vendor to begin keeping depreciation records for fixed assets.

In response to the question, “What changes, if any, have there been in record keeping for long-term debt?” only one treasurer said that there had been changes. The treasurer said that more detailed records were being kept since implementation of GASB Statement No. 34. Other treasurers noted that either their districts had no long-term debt or that their districts were previously keeping records on long-term debt and that the only change under GASB Statement No. 34 was that they were now reporting not only long-term debt, but also the expenditures to service it.

In response to the question, “What changes, in any, have there been in record keeping for program revenues?” only three treasurers said that there had been changes in their districts. One treasurer said that greater attention was paid to program revenues in financial records after implementation. In another district, the treasurer said a computer program was developed to identify and collect accounts receivable, such as for student activity fees. The treasurer in a third district reported reviewing and analyzing state and federal grants to determine how to account properly for the revenues under GASB Statement No. 34. A fourth treasurer said that a database query was written to capture program revenues, but noted that this was not a major change to district record keeping.

In response to the question, “What changes, if any, have there been in record keeping for program costs?” three treasurers said that there had been changes in their districts. Two treasurers said that they began determining and documenting the programs for which fixed assets were used so that the cost of those assets could be charged to the programs. One treasurer said that keeping track of assets by function resulted in the need to determine whether the cost of the asset needed to be transferred to another program each time the asset was moved. A third treasurer said that a database query was developed in that school district to capture program costs. In one district, the adult community education program was discontinued when it became apparent that it was a continuing financial drain on the school district.

In response to the question, “What changes, if any, have there been in record keeping for program subsidies?” none of the treasurers noted any. One treasurer said that program subsidies are more obvious under GASB Statement No. 34, but this information has not affected the school board, district administration, or public. Another treasurer said that the function codes used in Ohio to capture program costs are misleading and, therefore, information about program subsidies is of little use. For example, special education, transportation, administration are each assigned separate function codes, several treasurers noted. They said that the revenues, costs, and subsidies reported for special education in a district do not include those for transportation

and administration, even though transportation is a large component of the cost associated with each student in some districts.

In response to the question, “What changes, if any, have there been in record keeping for budgeted revenues and expenditures?” as noted earlier, three treasurers said it had resulted in some changes, though one treasurer said the changes were small

Question 4

In response to the question, “Has the way that your school district operates changed in any way other you have already noted, as a result of GASB Statement No. 34?” four answered , “Yes.”

The school board and administration in one district has used GASB Statement No. 34 information to gain a better understanding of it operations, its treasurer said. Another school district, according to its treasurer, has attempted to use the GASB Statement No. 34 information in various ways, such as in its negotiations with its bargaining units. GASB Statement No. 34 has not changed the school district operationally, other than providing better information upon which to make decisions, the treasurer said. A third district is more efficient in tracking its fixed assets and has improved its receipts process as a result of changes it made to comply with GASB Statement No. 34. In another district, the treasurer noted that the accounting staff is more involved in producing the district’s annual financial report since implementation of a CAFR and GASB Statement No. 34 in the same year. The treasurer estimated that staff spent 100 additional hours working on the annual report. The amount of time the treasurer spent on the report increased also, though the treasurer could not estimate how much. Since implementing GASB Statement No. 34, the treasurer began monitoring the delinquency rate in property tax collections and the county government’s debt load to obtain an early estimate of school district revenues in the coming months.

Question 5

In response to the question, “What are the major changes in appearance of your school district’s CAFR as a result of GASB Statement No. 34?” 14 treasurers named the Management Discussion and Analysis (MD&A). Several said the MD&A provides school districts with an opportunity to present the important financial information about their school district in a way that persons without a financial background can understand. Two treasurers said that school districts should strive to present the information in the MD&A in the most reader friendly way possible, by using graphics such as charts and tables to make the annual report more useful to readers, rather than just meeting minimum requirements for the MD&A.

Five treasurers named the Statement of Activities as a major change, though one treasurer said that the information in it is not used by report readers.

Five treasurers said that the reporting of minor funds on a combined basis, rather than individually, was a major change.

Three treasurers said that the Statement of Net Assets was a major change. One of the treasurers questioned the value of the information in the Statement of Net Assets. He said that the major net asset in a school district is usually cash. The amount of cash a school district receives is dependent upon student enrollment because federal and state grants increase with enrollment. The school district has little control over student enrollment, the treasurer noted.

Two treasurers said that the information included in the Notes section under GASB Statement No. 34 was a major change. One treasurer said that the use of full-accrual accounting was a major change. Another treasurer said that it was all of the changes named in the question taken in totality, rather than one specific change, which was the greatest change brought about by GASB Statement No. 34. The treasurer noted that a CAFR compliant with GASB Statement No. 34 is more thorough and presents the overall picture to the reader more accurately.

Question 6

In this question, the treasurers were presented a list of eight changes in the annual financial report and asked, “Of the following changes that GASB Statement No. 34 requires, which do you consider to have the most significance and why?” Several treasurers said that more than one item on the list presented for their comment was “most significant.”

In response to Item A on the list, “A Management Discussion and Analysis Section that provides summary financial information and non-technical explanation of the school district’s financial condition,” 12 treasurers said that this was most significant. They said that the MD&A is significant because it concisely presents the most important information from the annual financial report in a reader-friendly format that people without a financial background can understand. One treasurer, after expressing this view, said the MD&A is not worth the effort. The public’s interest lies with what directly affects their children, such as whether their children will be bused and whether there will be a school cafeteria, not with financial statements of the school district. Another treasurer said that although she believes that the MD&A is good because it makes one think a little more about school district finances, not one school district treasurer in her county had received any feedback indicating that anyone had read the MD&A. On the other hand, the treasurer of another district said that the MD&A is the section of the annual report that the treasurer’s office received the most comments on, indicating that it is being read.

Another treasurer noted that the school district’s annual report contains artwork by students in the school district. The school board in this district publicly recognizes the students at one school board meeting a year, which is attended by more than 100 family members and friends of the student artists. The treasurer is able to cull information from the MD&A to present to the public at the meeting, which, according to the treasurer, results in a larger number of the citizenry being informed about the district finance’s than would otherwise occur.

Treasurers in two districts said that another benefit of the MD&A is that it provides a comparison in operations over a two-year period and an indication of the direction in which a district is headed. One treasurer noted that growth in the school district has resulted in schools that are at capacity, so additional money for building and operating schools will be needed. This is clearly laid out in the MD&A of the district's annual report, which may be of benefit when the school district seeks voter approval of additional taxes.

In response to Item B on the list, "A district-wide Statement of Net Assets that includes capital assets and long-term debt," treasurers in two districts said that this was "most significant."

One treasurer said that the district-wide Statement of Net Assets clearly reveals a district's financial situation. The other treasurer said that the statement presents the overall financial condition of the district, rather than forcing readers to read through the financial statement for each type of fund.

In response to Item C on the list, "A district-wide Statement of Activities that presents program revenues, costs, and subsidies," treasurers in four districts considered this "most significant." One treasurer said that the Statement of Activities is one of the best uses of the CAFR. Another treasurer said that the statement is important because it enables the district to determine specifically where it is losing or making money. Another treasurer, noting the financial difficulties many districts are experiencing, said that the Statement of Activities could become more important to districts in the years to come as they try to cope with their budgetary woes. The fourth treasurer noted that the Statement of Activities is another overall summary of district information drawn from detailed information throughout the report.

In response to Item D on the list, "The Required Supplementary Information Section that allows presentation of information, such as actual revenues and expenditures compared with those in the original budget and the budget certified for taxes," treasurers in three districts said this was "most significant." One treasurer said that the comparison of actual revenues and expenditures with those in the original and final budgets might help the report reader understand what occurred during the year. Another treasurer said that this type of comparison is important and that variances between actual and budgeted revenues and expenditures must be addressed. This treasurer said that school district officials' credibility with the community is impacted by variances. The third treasurer said that school districts often took the attitude previously that as long as the school district ended the year financially sound, all was well. With a comparison of actual and original and final budgeted amounts, school districts have greater concern with keeping revenue and finances on track throughout the year.

On the other hand, one treasurer said that a comparison of actual revenues and expenditures with original and final budgeted amounts has little relevance in the world of education because there are so many factors over which district officials have little or no control. The treasurer noted that 10 additional special education students, for whom aides and

transportation were not budgeted, may show up at school during the first week of classes, rendering a comparison between actual and budgeted revenues and expenditures meaningless.

In response to Item E on the list, “The fact that some financial statements are presented on a school district-wide basis,” no treasurer said this was “most significant.”

In response to Item F on the list, “The fact that financial information is presented on a full accrual accounting basis and with an economic resource focus,” the treasurer of one district considered it, “most significant.” She said it is important because it gives a more accurate picture of the district’s financial condition by recognizing revenues when they are earned and expenditures when they are actually incurred. Another treasurer, though not citing full-accrual accounting as being “most significant,” said that full-accrual accounting should be used for all financial statements in the annual financial report, rather than using modified accrual accounting for many of the statements. He said that using modified-accrual accounting for some financial statements and full-accrual accounting for other financial statements is confusing to the report reader who does not have an accounting background.

In response to Item G on the list, “The fact that the value of capital assets and their decline in value over time is reported,” treasurers in three districts said that this was “most significant.” One treasurer said that depreciation is important because it impacts the school district’s financial statements, making them better reflect the district’s actual financial condition. Another treasurer echoed these sentiments, saying that it was the most significant change after the Statement of Activities. A third treasurer said that the company that insures school property was interested in the depreciated values of the district’s assets and gave the district a discount on its insurance as a result of these records.

One treasurer said:

The thing I really like about it is it tells you how fresh” something is, like your (school bus) fleet. If your fleet property values and acquisitions are slim and you’re letting the years go by, you can see your bus fleet is drifting into basic ruin. A lot of financial guys can come into a place and do that, run it into the ground. And you look good on paper in cash. They don’t reveal to anybody that they did it at the expense of fleet needs and that it would take acquisition of 10 or 15 buses to get the fleet back up to standard. To the very savvy [annual financial report reader], they’ll pick up on issues like that, and I try to mention them in my MD&A.

On the other hand, a treasurer in another school district said that the district had kept depreciation records previously, but it was only after the implementation of GASB Statement No. 34 that the district began reporting depreciation. The treasurer noted that reporting depreciation is not a big change for that district.

Several other treasurers said that other than a school district’s buildings and school buses, it has few high-value fixed assets. They noted that in their school districts, new schools are built

infrequently and sometimes mainly because the State of Ohio offers to fund a majority of the cost if district voters pass a bond issue within a year or so to fund the remaining cost. School buildings are typically in service for 50 or more years, unless declining enrollments or shifts of population within a district result in them being unneeded, they said. Similarly, the replacement of school buses is closely linked to state grants for transportation. Reductions in grant money in recent years because of a decline in state revenues means that their districts will probably replace school buses less frequently, they said.

In response to Item H on the list, “The fact that long-term debt is reported,” two treasurers said that this was “most significant.” The former and current treasurers of one school district noted that construction of new schools in the district suddenly made long-term debt and servicing of that debt a larger part of the district’s budget. Prior to GASB Statement No. 34, the significance of the long-term debt would have been less apparent to the annual report reader, and the reader would not have been informed of the amount of principal and interest payments, even though the school districts had the information in their records. As the treasurer in another school district observed, reporting long-term debt is another way that the district’s financial statements become a more accurate reflection of the district’s actual financial condition.

Several of the 13 treasurers who did not consider reporting long-term debt as significant said that their school districts had not borrowed money in 10 years or more and their school districts had no outstanding long-term debt; therefore, reporting long-term debt in the financial statements was irrelevant to their districts. Other treasurers said that school board and school administration were well aware of their districts’ outstanding long-term debt and claims it had on school district revenues before GASB Statement No. 34 was created. Therefore, the requirement to report long-term debt on the financial statements does not provide any benefit to the school board or district administration, they said.

Question 7

In response to the first part of this question, “Have the questions raised about your school district’s finances by the financial community changed since your district implemented GASB Statement No. 34?” treasurers in four school districts said they believe implementing GASB Statement No. 34 enabled their school districts to receive lower interest rates on the bonds the district issued.

The fact that several school districts in the study were offered the opportunity by the State of Ohio to build new schools through a combination of school district bond issues and state building fund grants probably influenced which treasurers said their school districts’ bond rates were affected by GASB Statement No. 34. Also, the fact that that three of the four treasurers were from “small” or “small-medium” school districts in terms of ADM may reflect the fact that the financial community had lower expectations for the financial reporting of their school districts because of their small size.

None of the four treasurers possessed evidence that bonds sold for a lower interest rate because the districts implemented GASB Statement No. 34. However, one treasurer said that one of the bond rating services said that it was “encouraged by the new reporting style” the school district had undertaken, referring to the implementation of GASB Statement No. 34. The treasurer in another school district said that the firm that underwrote the small district’s bonds told the district that the firm was impressed that a smaller district had implemented GASB Statement No. 34. The underwriter was interested in the district’s GASB Statement No. 34 information, the treasurer noted. In another district, the treasurer said the district’s bonds were sold when interest rates were at their lowest point, so the GASB Statement No. 34 information did not help the district as much as it might have, but, even so, the treasurer said the district may have received an interest rate one-half percent lower than would have been possible with GASB Statement No. 34 information. The treasurer in another school district said the district may have saved one-eighth of a point on bond interest rates because of GASB Statement No. 34 information. The treasurer said that this is because the information showed that the district was in good financial shape and that the district fairly stated the value of its fixed assets by depreciating them over time.

In 11 other school districts, treasurers said they received no feedback from the financial community about implementing GASB Statement No. 34 , though several said that they might in the coming years when their districts begin issuing bonds for new school buildings.

In response to the second part of the question, “Have the questions raised about your school district’s finances by school board members and government officials with oversight responsibility changed since your district implemented GASB Statement No. 34?” treasurers in six districts answered, “Yes.”

Treasurers from only two of the four school districts in the study from northeastern Ohio were among those noting changes in questions from school board members and government officials post-GASB Statement No. 34 implementation. The four northeastern Ohio school districts were in the top five among the school districts in the study for median family income, percentage of residents in administrative and professional jobs, percentage of residents who had taken at least one college course, average taxable property value per student, and population density. The treasurer of a school district outside of northeastern Ohio also ranked among the top five school districts in percentage of residents with administrative and professional jobs and average taxable property value per student and among the top six in percentage of residents who had taken at least one college course. She was also among the six treasurers who said that school board members’ and government officials’ questions had changed post-GASB Statement No. 34 implementation. The remaining three treasurers who also noted the change in questions from their school boards after implementation were from school districts at the lower end in all the categories listed above.

In one school district, the treasurer said that GASB Statement No. 34 information has helped the school board “slightly.” The treasurer said the school board does not study GASB Statement No. 34 information or ask many detailed questions based on it, but the school board

has expressed its appreciation of receiving the information. In another district, the treasurer said the information did raise questions with the school board. The treasurer said the school board probably paid more attention to the GASB Statement No. 34 information in the year of implementation because early implementation and the notoriety that came with it were a source of pride in the school district. In a third district, the treasurer said that various members of the school board use the GASB Statement No. 34 information differently, based on their individual knowledge of financial issues.

In another district, the treasurer said that the school board's questions became more insightful as a result of the GASB Statement No. 34 information. The treasurer said that in reading the MD&A, school board members are able to derive useful information, whether they have a financial background or not. The treasurer noted that school board meetings in the district are different from those in many other districts because the treasurer gives a written copy of the monthly treasurer's report to the board and also makes an oral presentation lasting approximately 30 minutes. The treasurer said that in many other districts the school boards simply receive and file the treasurer's written monthly reports. In still another district, the treasurer said that the MD&A generated occasional questions from the school board about net assets. Otherwise, the school board's questions related to the monthly investment reports, which are not related to GASB Statement No. 34. One treasurer among the six said that the change in what is asked has come from personnel in the State Auditor's Office when it does its annual audit of the school district. Another treasurer noted that one of the five school board members pays attention to the information and asks questions. Otherwise, the only interest in the information is from the State Auditor's Office and the federal government, with whom the district is required to file its annual financial reports.

However, several other treasurers said that many of their school boards probably derived as much knowledge and benefit from the new information in the school districts' annual reports required by GASB Statement No. 34 as did citizens in the district, which was little or none. Several treasurers also noted that school board members look to the treasurers to comprehend and explain the more complex financial issues with which board members are confronted. In the case of GASB Statement No. 34, the treasurers said that they understood it, but their sense was that board members and the school administration officials generally did not, except from the perspective that it was a new requirement that created additional work for and cost to the school district.

In response to the third part of the question, "Have the questions raised about your school district's finances by the public changed since your district implemented GASB Statement No. 34?" treasurers in four districts said that they had received more questions from the public since implementation of GASB Statement No. 34. Two of the four districts were in northeastern Ohio.

One treasurer said that one or two members of the public have asked questions that seem to indicate that they have read the GASB Statement No. 34 information. A treasurer in another district said that as a result of GASB Statement No. 34 information, the school district received more questions from community and business leaders and professionals with a financial

background. The treasurer said the questions were not negative towards the school district or its operation.

A third treasurer, who was from a northeastern Ohio school district, said the questions about the district since implementing GASB Statement No. 34 have been food questions and not of a nuisance nature. The district has a history of families moving in from the states of New York and California, and the treasurer said they are “blown away” when confronted with the school financing system in Ohio. The treasurer said that the MD&A gives these recent transplant something to help them understand school financing in Ohio, whether or not they have a financial background. The treasurer noted that the level of public interest in school finances in the district is such that a simplified version of the treasurer’s monthly report is passed out to the audience during school board meetings so that audience members can follow along as the treasurer presents the monthly report orally. This is in contrast with some other school districts, where the treasurers noted that few, if any, members of the public were present at the school board meetings on a regular basis.

Although the questions from the public in one school district had not changed since the implementation of GASB Statement No. 34, the treasurer reported that there had been much public comment to school officials. The comments were congratulatory for the school district’s early implementation of GASB Statement No. 34 and the positive publicity that it brought to the school district.

Treasurers in two school districts said that there had not been questions from the public resulting from GASB Statement No. 34 information. However, both said that under certain circumstances, such as the public school districts placing a tax increase on the ballot, there would be more questions from the public and requests for information on the school district’s financial condition, in which case GASB Statement No. 34 information might be used. Several treasurers noted that though the school districts comply with state law by advertising the availability of the school districts’ annual financial reports in local newspapers, the districts never receive any questions about the reports’ contents or requests for information from the public. Another treasurer said that if the school district issued a one-page report entitled, “Highlights of the CAFR,” and told the public, “This is what you need to know,” most citizens would be happy.

One treasurer noted that the financial reports, audits, and five-year financial projections for all Ohio public school districts are on the State of Ohio Auditor’s Office website, so there may be members of the public who are reading school districts’ financial information without school district officials being aware of it. The treasurer of another district said that the public is beginning to take more notice of school districts’ five-year financial projections. The treasurer said that this information is more useful to the public than the information in the annual report, including GASB Statement No. 34 information, because the projection contains more assumptions and the notes accompanying the projection provide more detailed information.

One treasurer said that GASB Statement No. 34 information has no impact on the public or school district bargaining units because they are interested only in cash-basis financial

information. Monthly treasurer's reports, the school districts' financial records until the GAAP conversion for the annual financial report, and the five-year financial projections are all on a cash basis in Ohio.

In response to the fourth part of the question, "What impact have these questions had on the school district's public website?" treasurers in four districts said that they annual financial is on their school districts' websites or would be soon.

Three of the treasurers were from northeastern Ohio school districts. The treasurer from the fourth northeastern Ohio school district in the study said that although the school district's annual financial report is not on the school districts website, the website contained a link to request a copy of the report from the school district. The treasurer added that copies of the annual financial report were also available at the public library, village hall, chamber of commerce, and local real estate offices. The treasurer said that only the district's cash-based income statement had been placed on the website in an attempt to keep the information simple enough for website visitors without financial backgrounds to understand it.

In one school district, the treasurer said that the district's CAFR is on the website because one school board member said it had to be there. The treasurer said that the CAFR is distributed to local government officials, who are asked to review it and contact the treasurer with any questions that they have on it. There have been few questions, the treasurer said. In another district, both the cash-basis monthly financial statements and CAFR are on the school district website, the treasurer said.

In one district, the website was being revamped, and the school district's CAFR, five-year financial projections, and notes to the five-year projections were going to be added to the website. The treasurer said it was unclear whether placing the CAFR on the website would draw more questions from the public about the school district's finances. He speculated that visitors to the school district website would be more likely to read the notes to the five-year projection than the CAFR.

In two other school districts, although financial information is placed on the districts' websites, GASB Statement No. 34 information is not included. In one district, the website contains cash-based financial information and budgetary information, the treasurer said. In the other district, the website contains financial information in the form of long-term forecasts for the district, building needs, and items that might impact the district finances.

In three school districts, the treasurers said that the website was under development so there was little information of any type on it at present.

One treasurer noted that there had been plans to put the school district's annual financial report on its website when she was at the school district. However, she left a year after implementation of GASB Statement No. 34 and said she believed those plans were scrapped after she left.

In the fifth part of the question, the treasurers were asked, “Have school district officials considered these questions when determining whether to seek a renewal of or additional school financing from the public, the type and amount of financing to seek, and the message to present to the public during the campaign to obtain school financing? None of the treasurers said that school district official had considered these questions when determining whether to seek a renewal or additional school financing from the public. The treasurer of one district said that the five-year financial projections are used when determining whether to place school financing issues on the ballot. The school district was small both in terms of ADM and revenue. The treasurer of another district said that the district had not needed to place a school finance issue on the ballot, but when the time comes to decide whether additional revenue is needed, GASB Statement No. 34 information may be used by school district officials in making the decision.

In response to whether school districts “had used the responses to determine the message to present to the public during the campaign to obtain school financing,” treasurers in two districts said that their districts had used the implementation of GASB Statement No. 34 or the Statement’s information in the campaign for passage of a ballot school financing issue. One treasurer said that the district had been able to use the information required by GASB Statement No. 34 to show the public that most of the school district’s fixed assets were fully depreciated. School district voters responded by approving the millage increase requested by the school district to replace old fixed assets. In the large school district, officials used the information required by GASB Statement No. 34 to show the public the difference between local revenue and state and federal revenue, and the restricted purposes for which the grant revenues could be spent.

Another treasurer said that, her school district used it implementation of GASB Statement No. 34, rather than the information that GASB Statement No. 34 required, in a successful millage campaign. She indicated that an independent committee comprised of community volunteers who promoted the ballot issue was not able to use the GASB Statement No. 34 information in the campaign because of its technical nature. However, the treasurer felt that the well-publicized fact that the school district had implemented “an improved” financial statement, i.e., GASB Statement No. 34, gave the district credibility with its voters.

In two districts, treasurers speculated that GASB Statement No.34 information would be used when their districts needed to seek voter approval of tax issues. One treasurer said that tables of financial information from the annual financial report’s MD&A would be used in an election campaign to show what had been done in the past and that the district has acted responsibly in maintaining its cash reserves.

In three districts, treasurers said that financial information other than GASB Statement No. 34 is used to promote school finance issues on the ballot. In on school district, the treasurer said that the public expects the school district to have a tax issue on the ballot every four years because of the sunset provision for the district’s various tax issues. The public is most concerned with district students’ overall scores on state academic proficiency examinations and how the district’s per-pupil spending compares with other districts in the area and the state as a whole. In

another district, the treasurer said that the district's long-term financial forecast and school building needs are used to promote school district tax issues. A third treasurer stated, "We haven't [used GASB Statement No. 34 information,] and we never will! Cash is king!" The treasurer explained that the public is used to and generally understands only cash-basis financial information.

Question 8

In response to the question, "Were there any other changes that resulted from GASB Statement No. 34 that we have not discussed? If so, please describe them and the impact they have had on your school district and you as the school finance officer," treasurers in six school districts provided additional information. One treasurer said that the MD&A took about 10 to 12 hours to write in the first year and only 1 to 2 hours in subsequent years. The treasurer said it took longer the first year because decisions had to be made on what to include in the MD&A, and then that pattern was followed in subsequent years. The treasurer added, "I haven't gotten any indication that anybody uses it."

Another treasurer said the biggest challenge in the year of GASB Statement No. 34 implementation was improving the fixed asset records so that they were complete and accurate and then showing depreciation for the assets. The treasurer, who attended several seminars sponsored by the State of Ohio Auditor's Office, did the work, rather than hiring a consultant. The treasurer, who moved to another school district the next year, implemented GASB Statement No. 34 upon arriving at that district. The treasurer explained that this was to take advantage of the knowledge of how to bring fixed asset records up to GASB Statement No. 34 standards and properly implement asset depreciation before the treasurer had forgotten the information.

A third treasurer agreed that fixed assets were the main challenge in implementing GASB Statement No. 34. School treasurers have disliked dealing with financial records for fixed assets all along, and GASB Statement No. 34 takes the treasurers one step further into keeping fixed asset records, requiring the time of both the treasurer and an assistant to maintain the records. As a result, however, school treasurers are more aware of school district assets, which the treasurer said, "is not a bad thing."

A fourth treasurer said that costs and workloads shifted because of the implementation of GASB Statement No. 34. Staff became more involved in producing the annual report. Internal control records over fixed assets had to be tightened up, the treasurer reported. "I decided if we were going to put fixed assets and depreciation in our financial statements, then the information was going to have to have some credibility." In the past, the school district employees had not always been meticulous about taking inventory or accounting for school equipment. The treasurer informed the employees that the school district's fixed assets represented taxpayers' money, and if assets under the employee's control could not be found, the employee was culpable as if the money entrusted to the employee was missing. The treasurer asked several employees who said they could not find fixed assets assigned to them, "Where's your police report?" In each instance, the missing assets were found. The effort to tighten controls and

improve asset records paid off, the treasurer said. She noted that the State Auditor's Office tested a sample of 700 fixed assets when auditing the district's financial statements in the year of GASB Statement No. 34 implementation and found no problems with the asset records.

Another treasurer said that early implementation resulted in the board of education, a board member, and the treasurer receiving certificates of recognition at a luncheon sponsored by the State of Ohio Auditor's Office for early implementation of GASB Statement No. 34. The school district also received a letter from the president of the GASB at the time praising their early implementation of GASB Statement No. 34. All of this was the subject of newspaper stories in the school district and led to positive comments from the public to school district official, the treasurer said. She noted that school districts welcome positive comments from the community because they receive negative comments for actions such as firing the high school football coach.

Yet another treasurer said the only impact GASB Statement No. 34 had in the district was that it now took more time to prepare the financial statements. There were some increases in staff time and cost implementing GASB Statement No. 34, but he characterized these as "minor." The treasurer said the support provided by LGS had made the implementation easier.

Question 9

In response to the question, "What information would you impart to a school district about to implement GASB Statement No. 34?" the treasurers generally answered that the school district should prepare for implementation ahead of time, learn as much about GASB Statement NO. 34 as possible, and use available resources, such as talking with the State Auditor's Office and other treasurers who have gone through implementation, and when necessary, hiring consultants to smooth the implementation process. Treasurers in 10 districts specifically mentioned the need "to get fixed asset records in order" and a depreciation system in place prior to implementing GASB Statement No. 34. One treasurer said:

"Assets! Assets! Assets! Make sure you get the [fixed assets reporting] threshold as high as you can and start working on them now because it takes a while to split them into different functions. Have you ever looked at a building and tried to decide what functions of a school are utilizing it? You have to sit down and think about it and go through and get all of your assets and determine who's using the assets this year versus last year."

Two other treasurers also recommended increasing the fixed assets reporting threshold prior to implementation to eliminate reporting the numerous low-value fixed assets that have little impact on a school district's finances. One treasurer noted that a school district would face a formidable task if it waits to raise the threshold until after GASB Statement No. 34 implementation. Subsequent year changes require not only changes in the fixed assets system the district puts into place to comply with GASB Statement No. 34 and purging of all low-value items from the records, but also restatement of the prior year financial statements to account for the reduction in the value of fixed assets and the reduction in depreciation.

Another treasurer said, “The most challenging part is getting your assets well-organized, well-defined, know what you want fixed assets to show, and making sure you have the time and staff.” A second treasurer agreed that it is important “to make sure that the asset system is doing what you want it to do.” She added, “Plan on staying away from home for a while.” A third treasurer said that having a system in place that does the depreciation calculations would make implementation easier.

Three treasurers recommended hiring consultants or other help in implementing GASB Statement No. 34 whenever possible, especially when working on fixed asset records and depreciation. One treasurer said that upgrading fixed asset records and depreciating assets “is not rocket science” and added that it just takes a lot of work physically.

If you don’t have anything else to do, it would be one thing. But you have the day-to-day: the office you’ve got to run, the payrolls you’ve got to take care of, and the bills to pay. And so you spend an enormous amount of time on your own just trying to figure out what’s going on.

Another treasurer said that a school district must consider whether the treasurer and staff can handle the extra work that implementing GASB Statement No. 34 requires, and if not, the school district should hire consultants. The treasurer said whether a school district can hire consultants depends on its financial condition, but said it is an especially good idea in large school districts or those with complex records. “My GAAP conversion costs \$10,000 and my audit costs \$19,000. We could hire a first-year teacher for that.” The school district cut \$500,000 from its \$10 million budget because of financial constraints, and faced an additional \$600,000 in cuts if a millage issue on the ballot in an election several weeks after the interview took place did not pass, the treasurer said.

“The only way to get there is by cutting people,” the treasurer said. Noting the precarious financial condition of several school districts in that county, she said that the school board in a nearby district told the treasurer not to have the required GAAP conversion done because it was too expensive. The school board decided that paying a possible fine of less than \$1,000 imposed by the State of Ohio for financial reporting noncompliance was preferable to spending several thousand dollars to do the GAAP conversion to comply with the financial reporting requirements.

Another treasurer, while recommending that school districts hire consultants to help them with valuing their fixed assets, cautioned, “Don’t depend on them entirely because they probably won’t be as thorough as you would like.”

One treasurer said that understanding how to implement GASB Statement No. 34 and getting assistance in doing it are important in keeping the extra costs associated with implementation as low as possible. Minimizing implementation costs of GASB Statement No. 34 is important “because you’re going to be questioned on it [by school district officials], at least in the beginning. They’re going to say, ‘Please justify this cost.’”

Several treasurers had advice in other areas as well. One said, “Get the budgetary stuff done as soon as possible because you’re looking at it from beginning to end.” Another treasurer warned that reported compensated absences “is a fairly major problem” because they are interpreted, calculated, and reported differently, according to the language of the different bargaining units’ contracts. The challenge increases with the size of the district’s staff and number of bargaining units.

Two treasurers advised to begin working on the MD&A early in the process of putting together the annual report, rather than waiting until everything else is done. Both said it is easier to collect information for the MD&A as the reporting process goes along, rather than trying to go back at the end of the process and dig out the needed information. One of the treasurers also noted that the MD&A should be more than an afterthought; it is a chance to communicate effectively with a larger audience than can be reached through other parts of the report.

Several treasurers said it was the amount of work that, more than anything else, made GASB Statement No. 34 implementation a challenge. One treasurer advised going into implementation with a positive attitude and plenty of support. The treasurer said that by talking with other school district treasurers in Ohio who were going through early implementation at the same time, the treasurer benefited from the ideas of others and was made aware of implementation issues that were not immediately apparent.

One treasurer advised, “Take it [implementation] seriously and value the information that it produces.” Another agreed, saying:

“You don’t want to weigh the effort against immediate value to the district; you’ve got to be a little more farsighted and look down the road. It [GASB Statement No. 34 information] certainly clarifies some things that otherwise might go unnoticed.”

As another treasurer said:

“If you’re not willing to do it right, don’t do it at all because it takes away from the credibility of the profession. The personal gratification of doing a financial statement properly that reflects what’s going on in your district is well worthwhile.”

Question 10

In response to the question, “Overall, how would you describe your experience of implementing GASB Statement No. 34?” treasurers in 10 school districts said that it was “positive,” “nearly painless,” or “rewarding.” One treasurer said that a plus of early implementation, besides the cost savings on LGS’s fees, was beating the rush of school districts implementing GASB Statement NO. 34 and competing for LGS’s assistance on implementation issues. Another said, “It really wasn’t bad,” adding that this was the perspective several years after implementation. “It’s like childbirth, very painful to go through it, but then the further out

you get, you kind of forget it [the pain]. We survived it and moved on. We're ready for the next big thing. Bring it on!"

Eight treasurers mentioned that implementation involved a vast amount of work, more than several of them said they had anticipated. The treasurers said that most of the work was spent improving fixed asset records and implementing depreciation of fixed assets. Determining under which function codes to assign fixed assets, i.e., the programs under which the assets and their depreciation costs should be reported, was also time-consuming.

Most of the treasurers credited the State of Ohio Auditor's Office, and frequently LGS specifically, for making implementation much easier than it otherwise would have been. One treasurer said, "LGS has given very good support and done very well for me. It was a learning process for them also. They hung in there and did a good job. Both of us learned a lot in the process." Another treasurer noted, "They (LGS) appreciated that a district our size would implement so early, so they were flexible with their time and helped us quite a bit. They had plenty of staff here to help us convert, so it wasn't bad at all." A third treasurer said, "LGS is a really strong department with some of the top-notch people in the field."

Four treasurers questioned the purpose of the time they spent implementing GASB Statement No. 34. One treasurer said improving fixed asset records and calculating depreciation to comply with GASB Statement No. 34 made implementation "very difficult" and resulted in the treasurer and staff doing much more work than they anticipated.

Depreciating fixed assets has made the numbers on our financial statements more realistic, but it has not helped us operationally. Insurance companies want to know what we paid for something, not the depreciated value. Depreciation has been more trouble than it's worth!

A second treasurer said:

"Unless the financial statements are widely accepted by the community, I see no significant value to the general public [of implementing GASB Statement No. 34] because of the time and effort and cost involved to prepare them. It's another mandated state or federal requirement for those of us who are trying to teach Johnny to read at a third-grade level. To be honest, I put it together because I have to put it together. If we were in business and had to use depreciation for the purpose of taxes, yeah. But it's hard to explain to the public that we have a 100-year-old building that we cannot fully depreciate and we're still in, even though the [accounting] rules say that it should be fully depreciated."

A third treasurer said:

"You know, you really don't get much out of it [GASB Statement No. 34]. But the GFOA [Government Finance Officers Association] International recognize excellence in

financial reporting. It's nice to send of the financial report each year and get a letter from them saying that you have been approved. That's nice."

A fourth treasurer said that neither complying with GAAP nor implementing GASB Statement No. 34 has been justified up to this point. "We spend extra money for the conversion and audit." The treasurer said complying with GAAP and GASB Statement No. 34 implementation might benefit the school district when it seeks financing for school building construction.

Large districts that do a lot of cash-flow borrowing would probably benefit from GASB [Statement No.] 34. If you had to borrow millions of dollars at the bank to tide you over, the bank would probably be interested in the GASB 34 information.

Several other treasurers agreed that GASB Statement No. 34 might make sense for the larger school districts in Ohio, but said it was of little or no value for smaller school districts, such as theirs.

While supportive of GASB Statement No. 34, another treasurer said growing budgetary constraints in the school district might cause the school district to review its decision to comply with GASB Statement No. 34. "Am I looking not to do it [comply with GASB Statement No. 34 requirements] because of budget constraints? Not this year and maybe not next year, but if the money doesn't materialize, it may have to go. I don't know."

Several treasurers mentioned that they and their districts received recognition for early implementation of GASB Statement No. 34, which they appreciated. Several had spoken at programs sponsored by the State Auditor's Office or professional associations involved with providing information on GASB Statement No. 34 implementation. Several treasurers said that they had received questions from other school districts, both within Ohio and throughout the U.S., about implementing GASB Statement No. 34. One district, which its treasurer characterized as being too small and remote usually even to merit news media coverage, received inquiries from the Philadelphia Public Schools and the state school system in Hawaii about implementing GASB Statement No. 34.

Conclusions

Based on the results of our study, we conclude that GASB Statement No. 34 has not been cost effective. It has resulted in more information being available to potential users of the annual financial report, but not necessarily more use of the financial reports by potential users.

The utility of the information provided as a result of GASB Statement No. 34 is directly related to the financial sophistication of the potential user, in the case of citizens and legislative and oversight officials. In other words, the more likely the reader is to understand the financial information contained in the financial statements, the more useful the information is that is required by GASB Statement No. 34. This is not much of an issue with the financial community

because generally its members have the financial sophistication to understand the pre-GASB Statement No. 34 information.

Budget-to-actual revenue and expenditure comparisons required by GASB Statement No. 34 have the potential to be misleading because the school districts are mandated to provide certain services to students, especially special needs students, and it is not always possible to predict the number of these students in a school district. As a result, school districts face the potential of “looking bad” for expenditure overruns over which they had no control.

As a result of GASB Statement No. 34 requirements, school districts have generally improved and parsed their fixed asset records so that they now provide a comprehensive picture of the higher value fixed assets.

Finally, the inclusion of information in the annual financial reports required by GASB Statement No. 34 may have resulted in lower interest rates on bonds issued by some school districts, as speculated by several school treasurers. However, there is no evidence that this is so.

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The Banking Boom : A Comprehensive Study on Bank Failure in the State of Arizona from 2009-2011

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Abstract

As a financial intermediary, a bank has a responsibility to supervise the large amounts of money that its customers choose to entrust in their care. With this money the banks help to stimulate the economy by lending money to borrowers that they deem responsible, who in turn utilize that money to invest and consume goods and services. What happens when banks become delegates of individuals' wealth, and the banks do not make wise decisions? When one bank makes bad decisions that lead to losses, the bank can normally buffer those losses with money that has been set aside into loan loss reserve accounts, but what happens when the entire banking industry is caught in profit-seeking behavior? How do banks sustain themselves when they have to make decisions that abandon the basic lending principles to stay competitive? These are the questions that banks were facing in 2007. Their decisions led to many bank failures as entrepreneurs took advantage of the rising real estate industry and ended up gambling away massive amounts of money on a fleeting economic bubble. In hindsight there are economic signs that could have warned government officials, bank management, and ordinary individuals of the gambles that were being taken by experienced lenders to stay profitable in the industry. This study is going to analyze what factors can be tracked to help decisions makers understand the dangers of the business cycle. The study will be composed of two main sections consisting of economic indicators and financial ratio analysis. The economic indicators will address the beginning examples of a peaking business cycle. At this point the consequences from past financial crises and crises internationally will serve as comparisons for similarities to the 2007-2009. This can show which warning signs banks should look for and how to react to these signs. The discussion of economic changes will cover basic principles that can be used to avoid future financial crises and an explanation of some practices banking institutions can implement to help prevent future bank failures. Between financial ratio analysis and economic studies, a comprehensive explanation for bank failure will become evident. The study of the banks that have failed will focus on one of the states that was most altered by the financial crisis of 2008. A look into the economic patterns, financial ratios of affected institutions, and finally what could have been done to minimize damages to banks will focus on the state of Arizona. This state, due to favorable weather and an influx of retirees, was a prime target for quick development and these projects were some of the first to fail because of their instability.

The Banking Boom:

Effects of the financial crisis of 2008 still plague the economy of the United States today. One of the major industries that was and still is affected is that of the banking industry. Banks suffered from numerous losses on defaulting loans, and some were not able to sustain their institution's survival. To reflect on the events that occurred during the financial crisis of 2008 a region of the United States that was highly affected was selected for the study, the state of Arizona. This state had a total of eleven bank failures from the years 2009-2011. Along with the total of eleven failures, nine healthier institutions that survived the crisis have been selected for this study to serve as a comparison. These banks were chosen from the same towns and are around the same asset size, as the failed institutions. To give an accurate portrayal of the financial crisis of 2008, Arizona banks will be representative of banks across the United States in reflecting the behaviors and risks that most banks were taking. After studying the financial institutions, there appear to be two specific sections of the institution's health that are a key focus as an explanation for failure. The first aspect is a focus on the economics behind the financial crisis, and how these economic changes affected the banking industry. This will begin with the economic conditions that the banks were being faced with at the time of failure and leading up to failure. The second section will be on the financial ratio analysis of the specific institutions that failed in Arizona during 2009-2011 with comparison to the other nine surviving banks. This section consists of ratios formulated by the Federal Financial Institutions Examination Council (FFIEC). This data was compiled to help the study analyze the financial conditions of the banks leading up to failure compared to the healthier surviving institutions. At the summary of these two sections there will be recommendations made for surviving financial crisis in future times. These two factors combined explain not only problems that bank managers were facing because of the risk level of the investments they were taking on, but also how their choices began to affect the entire economy.

The economy has a significant effect on any type of business' profitability. In the banking industry the two are closely related because the banking industry affects the rest of the economy as a financial intermediary. The economic section will begin with some background on the financial history on the United States economy. This will set the stage for what type of economic factors the government, individuals, and management should be able to observe the next time an overvalued asset begins to peak towards the end of the business cycle. With an explanation of the business cycle the study will draw on some past financial crises for comparison. This section will piece together the story of the financial crisis and bring the reader the ability to relate to the decisions that were being made in the banking industry. This section of the study will show emerging patterns in financial crises across both time and countries. These patterns emerge because of not only economic factors, but mistakes that continue to reoccur throughout history.

The second section of this study consists of financial analysis of ratios. This section will be based purely on financial data and the conclusions on what the financial ratios indicate to financial experts. Explaining how these ratios are used in the financial industry will help to show the reader the purpose of the financial analysis. Eight different ratios were selected to help show a complete picture of the financial institutions. There were eleven institutions that failed from 2009-2011 in the state of Arizona, which will be included in the data along with nine surviving

counterparts. For the purpose of this study a bank failure will be defined as “a situation in which a bank is unable to service its debts (Bank 2011).” When this happens the Federal Deposit Insurance Corporation (FDIC) will take over the bank and either sell it to another bank, run it through the FDIC, or completely shut down and liquidate the deposits. The most common result is to sell the assets to another bank in the area (Bank 2011). The financial data compiled by the FFIEC to date of failure, goes back four years leading up to the failure for the purpose of this study. In the case of the surviving institutions the data goes back four years from the current year of 2011. These conclusions will be represented in a series of graphs and charts comparing between the year of failure (Year T) and the years leading up to failure, where data is available. Through the graphs, the gradual decline in financial stability of the failed institutions in Arizona in 2009-2011 will be shown. The tables and charts are reflective of what economic changes were taking place. Together with the understanding of the financial crisis of 2008, this financial ratio section helps the reader draw some conclusions about the health of financial institutions. Along with this study, the data shown in the state of Arizona is reflective and comparable to the statistics that were being seen across United States. This is done by using sources that are applicable to the overall economic outlook countrywide. These numbers were not only evident across the other 49 states, but in some cases more severe. The healthier institutions in this study will help to show that even surviving institutions had several problems, as shown by their financial data. This shows how the overall economy affected more than the local markets.

The conclusions will draw together the previous two sections to reflect the situation bank management was facing in 2008. The effects of the decisions become clear in the failure of the institutions that occurred not only in Arizona, but across the nation. Although this is a focus on Arizona because the effects were inflated in this state, there needs to be a reminder that this was a nationwide phenomenon. The conclusions found in this study are applicable to bank failures throughout 2007-2011. Different from past financial crises that typically targeted small regions in the United States, the crisis of 2008 impacted mortgage prices across the country. This study will show some dangers in deregulation of the banking industry, and how responsibility for actions can and has been passed onto several different parties. The financial crisis of 2008 ended the same as past financial crisis with the common people paying the price for the investment bubble.

The Financial Crisis of 2008:

During the time of the financial crisis, there were a number of changes leading up to the market crash that led to bank failures, soaring unemployment rates, and a major devastation of the housing market. Because this study focuses on banks in Arizona some of the statistics will be focused on state specific information, but the consequences and overall understanding of the economy will require some countrywide analysis, which is drawn from nationwide sources. The affectivity of the crisis varies among states due to the differences in the banking industries, the diversification of the loan portfolios, and past banking regulations within the state. To begin to understand what happened during this time, it is important to begin with what was happening before the market crash. This section will draw on some information from past financial crises to help demonstrate the cycles that businesses and the economy go through. This section will begin

with defining both a business cycle and financial crisis for the purpose of this study. After drawing on data from various sources, the reader will become aware of reoccurring patterns in financial crises in the past both nationally and internationally. Seeing what patterns emerge will help to introduce the current financial crisis. The analysis will start with the nationwide problems in 2008, and then focus on the specific state data of Arizona. This will lead into the study of the specific bank institutions to show how the financial data reflects what the economy was predicting.

According to Onwumere in a study on various theories on the business cycle, “a business cycle is the continuous movement of expansion and contraction caused by the movements of cumulative forces (2011).” This definition is a combination of several different definitions that were drawn from the study by Onwumere, but this is the best explanation for this study because it shows that the cycle is continuously moving, but not necessarily in a set time frame. Figure 1, as seen below, shows an illustration of the business cycle with both expansion illustrated with the peaks, and contraction reflected with the saddles. The economy changes throughout time, the growth section, referred to as the expansion below, takes longer to accomplish whereas the recession down slope is far steeper than the growth section. This shows that it takes longer for the economy to recover from a recession than to crash from an expansion time.

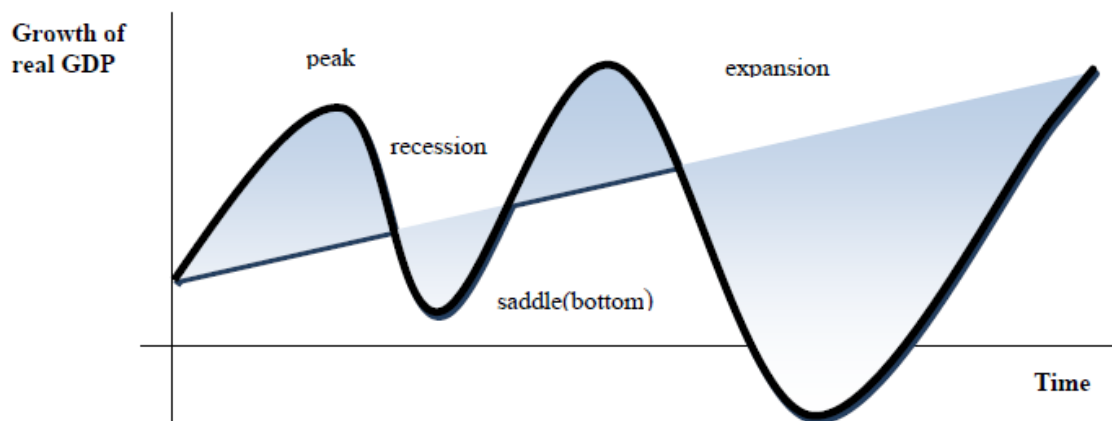


Figure 1. Business cycle

After seeing an illustration of the business cycle, it is clear that changes in the economy are inevitable because of the changes to the business cycle. Onwumere in his study found a few suggestions for why the economy suddenly dips into a recession. Keynes suggested that expectations from investors continued the economic growth, and as soon as the confidence in the economy was lost there was a rapid downturn in the economic activity (Onwumere 2011). Another theorist, Schumpeter, thought that new investment shocks led to expansion as the technology rode the business cycle until it had reached its peak. When the technology could not help the economy to grow any further, the bubble would crash sending the economy into another recession until the next technologic advancement was born (Onwumere 2011). This explanation has validity because historically growth does begin with a large amount of investment forcing up prices. The last explanation is Minsky's theory on debt. This theory suggests that as consumers

build confidence in the economy again that they borrow more and more against their equity. At some point their underlying equity loses value because of the leverage held against it. Minsky suggests that because of the overleveraging of the consumers and businesses that the system collapses (Onwumere 2011). Although it may seem that these theories are fundamentally different, all of these theories seem to have a role in the financial crisis history in the United States. It becomes clear that the economic crash happens when the confidence in an asset is lost by investors.

The next key factor in studying the financial crisis of 2008 begins with defining a financial crisis for the purpose of this study. According to Shachmurove, a financial crisis consists of three basic components; the first is the collapse of an asset market. This can be seen in the collapse of the real estate market in the financial crisis of 2008. The next component is a decrease in output from companies and an increase in unemployment because of the reduction in output. This is because consumers slow spending out of fear. And the final component is the increasing of government debt. This occurs because government is reducing its income from tax revenue, as unemployment increases, but in more recent cases they are also increasing their spending to help stimulate the economy (Shachmurove, 2011). These three components can be seen throughout even the earliest crisis. With the fall of the asset market individuals who have leveraged against assets may no longer have equity valued as high as the amount they have borrowed. If the borrower fails to make payments back on their debt, the bank or lending institution may not be able to recover the amount because of the drop in value of the asset. That is where the banking sector begins to enter the crisis. The common people, through tax costs, and stockholders bear the costs of the mistakes of corporations and financial institutions. Instead of losing because of direct investment as seen in the next case in today's time they are losing because of the assets they invest in financial institutions that do not utilize them correctly. That is one of the benefits that the FDIC now offers to consumers, which is the protection of their deposits up to \$250,000 (increased in 2008) (Baran 2011).

It is important to look at past financial crises to understand patterns that can emerge as clear warning signs to government officials and business leaders. The first crisis that this study investigates goes back to the 17th century in Europe. Around this time there was a great demand for a rare Tulip Onion Plant. The prices became so exaggerated in Holland that the onion plant was being imported at prices higher than housing costs. The speculative bubble burst as soon as the plant was able to be reproduced, and demand was filled. However the costs that were incurred were born by the common people that had chosen to invest in the plant (Baran 2011). Although the underlying asset changes overtime, the basic situation includes exaggerated demand with artificially raising prices for the asset until the speculative bubble burst. Showing this simple illustration is a classic example of the common people trying to participate in markets that they may not understand to make a profit. It is typical for the common person to enter a market at the peak of the business cycle, which can lead to major losses. This is unfortunate, but the usage of financial intermediaries can help to protect the common person by making educated decisions with their money. However with this usage of funds, the moral hazard problem is born (Duffy 2011). This will be discussed in greater detail later in other financial crises.

After the 17th century, the 18th and 19th centuries contained patterns with similar problems and solutions. The 18th and 19th centuries had several financial crises that were all very similar to the Tulip Onion Crisis because of lack of regulation, lack of money supply, and limited diversity because of regulations that were put into place against branch banking (Scachmurove 2011). The two biggest issues that needed to be addressed included a lender of last resort and need for regulation. In 1913 the United States formed a solution to some of these problems by creating the Federal Reserve. This action led to less bank failures because there was the ability to have liquidity provided in case of a bank run (Scachmurove 2011). This played a significant role in reducing the amount of bank failures because there was regulation to help banks achieve a sound level of financial security, as well.

With the creation of the Federal Reserve the Central Bank was expected to stop any financial crashes that would occur, but after the occurrence of the Great Depression there were some beliefs that the Federal Reserve actually contributed to worsening the crisis through their policies, which did not help stimulate confidence in the new system. To further help with crisis the Glass-Steagall Act of 1933 was born. One of the most important parts to occur from this act was the creation of the FDIC. This organization would insure the deposits in banking institutions up to the limit set by government, which will change normally close to a financial crisis because of the need to prevent bank runs. It became necessary to do this because of inflation that is seen with the growth cycle that precedes a financial crisis. The FDIC created the moral hazard problem by giving banks insurance to protect the consumers, but also giving the bankers insurance for poor investment decisions. The moral hazard problem is seen as a principal-agent problem. Whereas the principal (bank customer) assigns a responsibility to an agent (banker), but the agent has an incentive to go against the customer's best interests to increase their interests. In this case the higher profits from riskier investments can lead to a desire to invest in investments that have a higher than average risk to the consumer. This is a serious problem in all businesses because of the lack of ability for the principal to invest and run the business. Principals have to pay extra costs to ensure that the agent is acting in their best interest. The other item that came out of the Great Depression was the creation of the Federal National Mortgage Association (Fannie Mae) and the Federal Home Loan Mortgage Corporation (Freddie Mac) to help with the struggling housing market because of the Great Depression (Scachmurove 2011). These were government sponsored programs, not government backed programs, but this will become relevant when looking at the financial crisis of 2008. These entities were assumed to be government backed programs, which allowed the corporations to borrow at lower rates than other mortgage buying institutions that were privately held (Kluza 2011). This led to the last aspect of the Glass-Steagall Act which created a more regulated financial system mainly limiting the expansion of banking. Eventually as the market began to favor deregulation around the 1980s all of the acts in Glass-Steagall were repealed (Scachmurove 2011). This becomes very important because one of the main causes of financial crisis is deregulation, which will be seen in one of the more recent financial crisis below.

Another major financial crisis related to the financial sector and reflective of problems ahead occurred during the Savings and Loan Crisis in the 1980s. The Savings and Loans crisis is very similar to the crisis of 2008. After the Great Depression, banks had a low risk loan portfolio

with high liquidity, which left room for investments. The Savings and Loans Associations are similar to banks in the fact that they act as a financial intermediary (Gonzales 2011). Oglesby defined the Savings and Loans Associations as “financial institutions that accept savings deposits from private investors, provide mortgage loans to the public, and pay dividends (2011).” The Savings and Loan industry historically was highly regulated, but because of inflation the government decided to deregulate the relatively safe Savings and Loans Associations to keep the industry competitive. This gave them the opportunity to act as commercial banks without the regulations of banks (Shachmurove 2011). The banks were able to accept higher quality loans, but as Savings and Loans strained to keep up with the same lending amounts as commercial banks, they took on higher risk loans because they were the only ones available (Baran 2011). Because, inflation caused higher than normal nominal interest rates, high risk lending practices from the Savings and Loans Associations, caused serious problems. In a private interview, Mr. Barry Brown, who had first-hand experience in this crisis as a risk analyst in Texas, stated that it was not that banks did not see the deregulation and riskier investment patterns that were being undertaken by Savings and Loans Associations, but that they had become known for taking on that large amount of risk. They were trying to stay competitive and that is what they specialized in (Mr. Brown 09/09/11). On “Black Monday” the stock market crashed in 1987 (Shachmurove 2011). The stock market is one of the best ways to gauge how consumer confidence is in the market. Bank failure numbers were at an all-time high, this time the Federal Reserve responded in a different way, by lowering the Fed Funds rate and essentially bailing out the financial sector. At this point the dramatic recovery because of the Federal Reserve’s quick actions allowed deregulation to continue in the banking industry with a specific focus on the restrictions of branch banking and interstate banking because consumers had confidence in the Federal Reserve’s ability to maintain the economy (Shachmurove 2011). With this confidence, the banking institutions were able to compete with high yielding securities in the market such as mutual funds because of the removal of interest rate ceilings (Duffy 2011). This helped banks to better manage their funds by being able to control the flow of deposits into the institution through pricing. Out of this crisis came a rise in deposit insurance and a rise in the requirement for capital held by institutions (Baran 2011). This is one important ratio that will be seen in the financial ratio analysis later in the paper. The important issue to take away from the Savings and Loan Crisis is that deregulation outside of the banking industry can be just as dangerous to the financial sector.

Julie Stackhouse, the Senior Vice President of the St. Louis Federal Reserve Bank, gave a summary of the events of the financial crisis in a presentation at Murray State University. Leading into the financial crisis of 2008 there were a number of different factors to take into consideration. The first one being that there was a large push both by the government and at the local level to get families into residential housing. Because of this large push bankers felt a lot of pressure to make mortgages, and real estate was in large demand (Stackhouse 10/04/11). As larger financial institutions began to package mortgages together and sell them on the open market, there was a need for high quality mortgages to sell on the market. However the problem became that the best loan applicants quickly became limited. The bankers were able to make riskier loans then sell them to keep the risk off the books. Banks had to expand beyond their basic loan customers. As the demand increased and securities were sold to other financial

institutions or the investors, bank profits continued to grow. Because of the rising value in the real estate market, bankers began to make riskier loans because the real estate market was constantly growing. If the customer could not make payments, the property would appreciate and the equity could be used towards the loan. Along with this mortgage backing, the credit rating on the securities continued to be triple A (the best rating) because of a conflict of interest found in the credit agencies. A lot of consumers that were not eligible to be in houses were able to get into houses because of complex loans and banking practices. (Faber 2009). Another part of this boom was the consumers taking on loans that they didn't fully understand; such as Adjustable Rate Mortgages (ARM). This type of mortgage has an interest rate that is tied to an index, and can cause changes in the monthly payment of the mortgage. According to Chorafas, in over one half of the ARM mortgages that were made the consumer did not know that their rate would be changing (Chorafas 2011). Some banks stopped requiring basic documentation on credit history and the amount of equity in the asset because the increasing housing prices were seen as a safety net (Chorafas 2011). As seen earlier in the Savings and Loans and Tulip Onion examples, the underlying asset becomes into great demand (Baran 2011). One of the biggest problems with this situation was that banks were leveraging short term low risk debt against long term illiquid risky assets in the housing market (Duffy 2011). As the demand continued to increase, bank requirements for loans like down payments, employment verification and other paperwork typical with mortgages, stopped being a normal part of the mortgage process (Chorafas 2011). This led to some mortgages having zero down payments, but also the lending of loans over the value of the home to cover renovations. With the securitization of the mortgage backed securities and the consistent rising in real estate prices there were no concerns for investors. Eventually, the mortgage market crashed. The market prices dropped anywhere from 20 to 40 percent (Chorafas 2011). Because of the lack of diversification and heavy investing in the real estate market, the banks were very vulnerable to local economic shocks (Wheelock 2011). These shocks were magnified in states with historical rules against branch banking. As the value of the real estate property dropped and the riskier loans (made without documentation) were not able to make their payments, banks began to take substantial losses in their financial statements. There was a small margin for profitability because of low capital amounts and slowing earnings; it wasn't long until banks had lost large amounts in their allowance for loss accounts, which were amounts of money set aside to cover defaulting loans (Estrella 2011). The majority of defaulting loans came from business development loans, real estate property, and consumer loans that the bank held on books. The mortgages were sold to investors, but the loans that came along with an expanding economy were on the bank's books and depleted the loan to loss reserve accounts (Stackhouse 10/04/11). The banks that were able to survive this crisis took corrective action to build their capital back up as bad loans that were kept on the books defaulted.

As stated by Wheelock, the banks were vulnerable to localized economic shocks (2011). This is because of the lack of diversification in the portfolios of banks. Bridenstine helps to offer some history on banking in the state of Arizona to show how this crisis affected the economy specific to Arizona (2011). Throughout the 1920s and 1930s, there was a high level of asset concentration in the industrialized parts of Arizona because of strict regulations and lack of assets to invest in. Because of the lack of industrialization, there were a high percentage of loans in residential real estate and consumer loans (Bridenstine 2011). The banks learned to operate

with high loan to asset ratios because of the need for liquidity. This type of operation occurred during times of growth, such as the years leading up to the crisis. As the growth of GDP went up, the number of loans that were given also went up as individuals took advantage of the expanding economy to grow (Cebula 2011). The growth was going on countrywide, but the effects were magnified in Arizona because of the lack of industrialization and concentration in the banking industry. New subdivisions began to spring up rapidly, and Arizona with the fewest banks per capita in the country was booming (Whitford 2011). As Gouindan stated in an interview for the Whitford study “the most aggressive behaviors become infectious.” Banks wanted to continue to show rapid growth, which led to relaxing of the loan quality. The bankers who were older and experienced had to play along with the game, or go out of business. Individuals decided to open banks and counted on strong bank management to run the basic activities (Whitford 2011). The deposits that were being drawn from could be bought from brokers at high prices to bring in extra money in less populated areas, especially Arizona. This made fickle deposits based on high interest rates being paid. It was profitable to make loans until bankers were no longer able to pay large interest rates to depositors (Whitford 2011). Because Board Members were seeing large amounts of growth, it wasn’t until outside auditors were brought in that a lot of investors in the local banks realized at what risk level the banks were operating. The banks that survived, or ended up becoming successful after a merger, began to set aside large amounts of capital and practice conservative lending in recent years (Whitford 2011). This is an example of how other banks can try to succeed after the crisis. After seeing how this crisis began, the financial ratio analysis will show more in depth information on the state of the banks that failed in Arizona from 2009-2011.

Financial Ratio Analysis:

When studying the health of an institution, one of the best insights into the financial workings inside the institution can be found within the financial statements. These statements reflect on what type of capital the bank is holding and the quality of liabilities and assets. Because the Federal Financial Institutions Examination Council (FFIEC) is responsible for documenting the health of banking organizations, there are accurate records of the banks being examined back to their charter of incorporation. Looking at financial statements can be useful, but without comparisons to previous years or similar industry averages the statements are useless. For this study, some of the best reflectors of financial health were chosen with a total of eight financial ratios. Beginning the analysis with Year T, the banks are tracked back from Year T to Year T-4. This encompasses five years of financial statements that have converted into important financial ratios for the analysis of bank health. Year T represents the actual year of failure or year to date (2011) for surviving institutions because the date of failure is different with every institution. Year T data reflects the most recent collected financial statements. The oldest financial statements that will be seen will be three months before failure represented by Year T, which is reflective of bank regulation schedules. The actual date of the year that Year T represents varies between banks because of the need to get the most up-to-date statements. After Year T, the data for the four years before, represented by Year T-1, Year T-2, Year T-3, and Year T-4, is collected at the same time of the year as Year T. This insures that the data reflects the financial positions of each institution at the same amount of time before failure instead of

focusing on the variations in the business cycle of banks throughout the year. This appears to be the most appropriate method for gathering the information into a format that is most representative of financial changes in the soon to fail institutions represented by institutions ten through twenty. Institutions one through nine represent institutions in Arizona that are still surviving today to show a comparison.

To begin looking at the financial ratios of these institutions, there is a need to define how these ratios are generally interpreted in the financial setting. This includes the calculation of the ratio and in some cases a typical comparison number that is acceptable in the banking industry and with regulators. To start off the ratios is Return on Assets (ROA). Return on Assets is defined by Investopedia as an indicator of how profitable a company is compared to its total assets. It is calculated by dividing Net Income by Total Assets, which yields a number that turns into a percentage by multiplying by 100, which is compared to other industry averages or past year's performance. Net Income can be defined as revenues after all costs and taxes have been subtracted out. This ratio can also be referred to as return on investment, and it reflects the ability of managers to use assets to generate profit (Investopedia 2011). Because banks are so highly leveraged a lower ROA can still indicate large profits (Industry 2011). Although banks may not be expected to have large ROAs, a falling ROA is almost always a sign of trouble to come.

The next ratio to be looked at is the Return on Equity (ROE). This ratio is similar to the ROA that was just seen except that it measures the amount of net income returned as a percentage of Stockholder's Equity (Investopedia 2011). This reflects on how much profit the company has made based on the money that shareholders have invested. This ratio is calculated by dividing Net Income (defined in above paragraph) by Shareholder's Equity instead of Total Assets as seen in ROA. Shareholder's Equity is the ownership amount currently held on the books by the investors in the company (Industry 2011). The only downfall to this ratio is that it does not take into consideration the debt the bank is holding. Combined with ROA this ratio gives a comprehensive picture on how the components of the institution are being used to produce returns.

An Efficiency ratio is the next ratio looked at in this study which is a reflection of how well managers use assets and liabilities internally (Investopedia 2011). A decrease in this ratio means an increase in profitability. This ratio is calculated by dividing the noninterest expense by the total of net interest income and noninterest income. This is interesting when looking at the data because the percentage increases rapidly as the institutions get closer to failure. The increasing of the data means that the cost of making loans is increasing. The numbers in the data can show how their loans became more risky because of the large increase in the efficiency ratio over the time span till failure. This will be looked at further below, but an efficiency ratio is important to reflect on the amount of money management has to spend to still be profitable during this time.

The next ratio directly correlates with the amount of bad loans the institutions were making leading up to the time before failure. This percentage known as the Allowance for Loan and Lease Loss reflects the amount of loans in the bank's portfolio that the bank predicts will go

uncollected (Investopedia 2011). After non-collection, the amount is removed from an account that is set aside for losses. This data can indicate how quickly the portfolio picture that management faced had changed from 2007-2011. This ratio is a large part of showing the confidence the banking industry had in the economy and its customers.

The next ratio analyzes the nonperforming assets on the financial statements of the institutions. This ratio works very well with the above ratio that reflects the banks outlook on their loan portfolio by their prediction of loans that will fail. The new ratio, nonperforming asset ratio, shows the amount of loans that have not met payment deadlines to date. This ratio shows the actual amount of nonperforming assets in comparison to the above ratio of prediction (Investopedia 2011). When the loan is headed into default status, it will be classified as nonperforming. As more nonperforming assets begin to be classified, the Allowance for Loan and Lease loss should increase proportionately.

The loan to deposit ratio is a reflection of how liquid a bank is by dividing the outstanding loans by deposits. When this ratio is too high, the bank is highly leveraged and could lead to failure with any unforeseen costs, but the ratio can be too low if the bank is losing profits because of its lack of utilizing resources. In 2008, the FDIC reported on the states' averages of the LTD ratio ranging from 56% to 170% (Investopedia 2011). Below, the data can be compared to this range to see where the ratios were at during this financial time. This ratio can help reflect on the lending policies of the studied institution.

The capital ratio is another very important ratio in the banking industry. Because there are different tiers of capital ratios, the one used for the purposes of this study is the Total-Asset to Capital Ratio. This is defined by Investopedia as the total of assets versus the total capital without risk adjustment (2011). It is calculated by dividing the assets by the capital. This can also be looked at as the amount of leverage a bank can take on. There are now regulations set forth using this ratio as the basis. The higher the ratio the more risk that can be sustained, if the ratio is very low that means the capital cannot depreciate much in value because it is needed to cover debt. When loans begin to default and earnings are not available, the money to replenish the loan to loss reserve accounts is pulled from capital.

Looking at the yield on earning assets, this is a ratio that contains the calculation of the income based on total interest, dividend income, and fee income earned on the earning assets such as loans or leases. This basically means what percentage of profit the assets are earning on their investments. This is important because when bank loans stop yielding profit then the bank will stop profiting (Investopedia 2011). Similar to the previous ratios, this ratio will mirror the actions of the above listed ratios as the bank's health gets better or worse.

All of the ratios have been defined given the study's purpose for them, the actual data can be analyzed to see where these financial institutions were headed before their insolvency occurred. The interesting pattern that emerges in the data is that the ratios tend to mirror one another. This makes sense because so many of the ratios are closely related. This shows that most areas of the institutions were having problems, not just management or asset value. The

healthier institutions are pulled from similar locations as the failing banks, and the data reflects how the crisis affected their financial ratios, as well.

Financial Ratio Data:

Table 1 reflects the twenty institutions in this study from the year of failure or year to date, Year T-4 up to Year T. The shaded portion reflects the surviving institutions and their averages compared to the failed institutions. The data reflects the opposite changes in ROA seen in the surviving and failed institutions as the institution gets closer to the Year T. The institutions start out in Year T-4 with positive ROAs in all failed institutions, except one. The overall average increases to .796 in Year T-3 for failed institutions. All institutions are experiencing growth from Year T-4 to Year T-3. Year T-2 affects both surviving and failed institutions with a decrease in ROA, but it appears from Year T-2 to Year T-1 is where the surviving institutions made changes that differ from the failed institutions. Year T-1 shows significant improvement in the average of the surviving banks, whereas the failed banks take a large decrease in the ROA.

It is interesting to note, most of the failing institutions actually had an improvement in ROA that was very reasonable between Year T-3 and Year T-4. In Year T-2, the data in most of the institutions begin to reflect negative results compared to the surviving. The failing institutions with some of the largest losses during Year T-2 appear to have had the least amount of growth in the years prior to Year T-2. An interesting pattern that is shown by institutions 12, 13, 18, 19, and 20 is that the ending ROA were all within .5 of each other, yet their ROA before had much larger variation. The overall average of the failed banks will be displayed on the far right of the chart each time to demonstrate the overall market change. The surviving bank average will be in the middle of the Chart, as a separation between the two groups. The ROA of an institution is crucial to study the future health of the institutions.

Table 1: Return on Asset, Surviving and Failed Banks					
Institution	Return on Assets Year T-4	Return on Assets Year T-3	Return on Assets Year T-2	Return on Assets Year T-1	Return on Assets Year T
1	-15.73	-4.23	-0.58	-0.84	-3.3
2	13.26	32.47	28.83	30.32	35.13
3	0.82	0	-0.42	-6.28	-2.62
4	0.69	-1.05	0.51	0.49	0.99
5	1.71	-0.95	-2.83	-0.84	-2.01
6	-4.98	-4.55	-1.78	0.24	0.69
7	1.67	1.15	0.47	0.41	0.3
8	0.73	-1.67	-4.27	-4.51	-2.95
9	-13.94	-12.8	-13.94	-2.33	0.07
AVG	-1.752222222	0.93	0.665555556	1.851111111	2.922222222
10	0.23	0.08	-0.27	-1.28	-3.24
11	1.05	0.64	-2.06	-4.08	-2.91
12	1.1	0.98	-1.88	-2.63	-10.94

13	0.56	0.6	-0.25	-3.03	-10.76
14	0.22	1.35	0.03	-9.08	-21.25
15	0.86	0.74	0.34	-4.8	-1.73
16			-1.1	-8.84	-16.86
17	0.66	0.18	0.22	-4.32	-2.94
18	0.89	1.01	0.44	-0.14	-9.49
19	1.27	1.55	-0.23	0	-8.75
20	-0.85	0.33	0.17	-2.55	-8.95
AVG	0.599	0.746	-0.417272727	-3.704545455	-8.892727273

Chart 1: Return on Asset, Surviving and Failed Banks

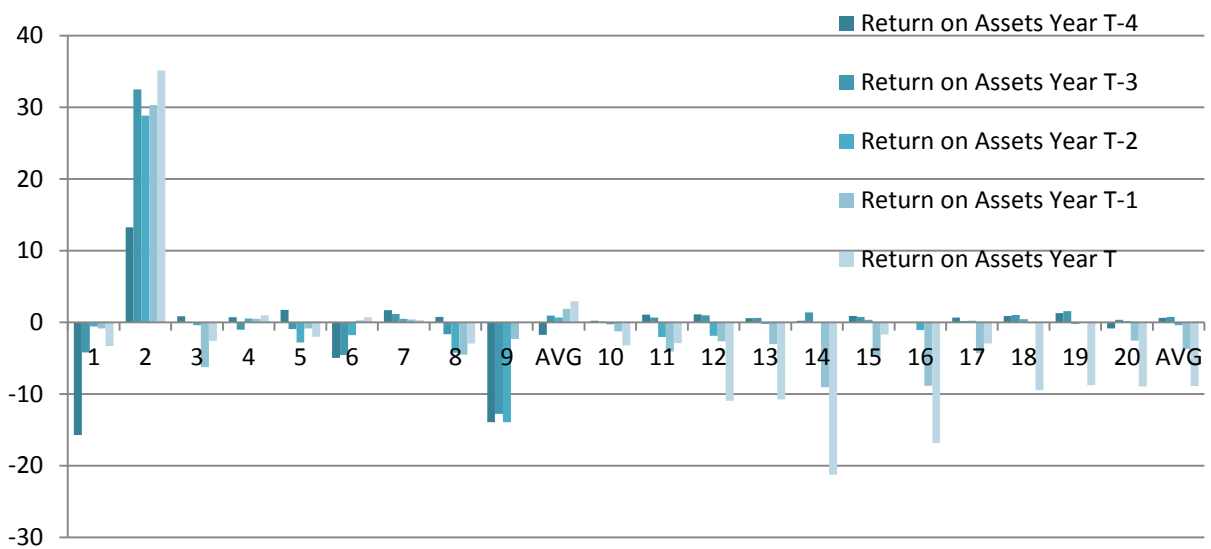
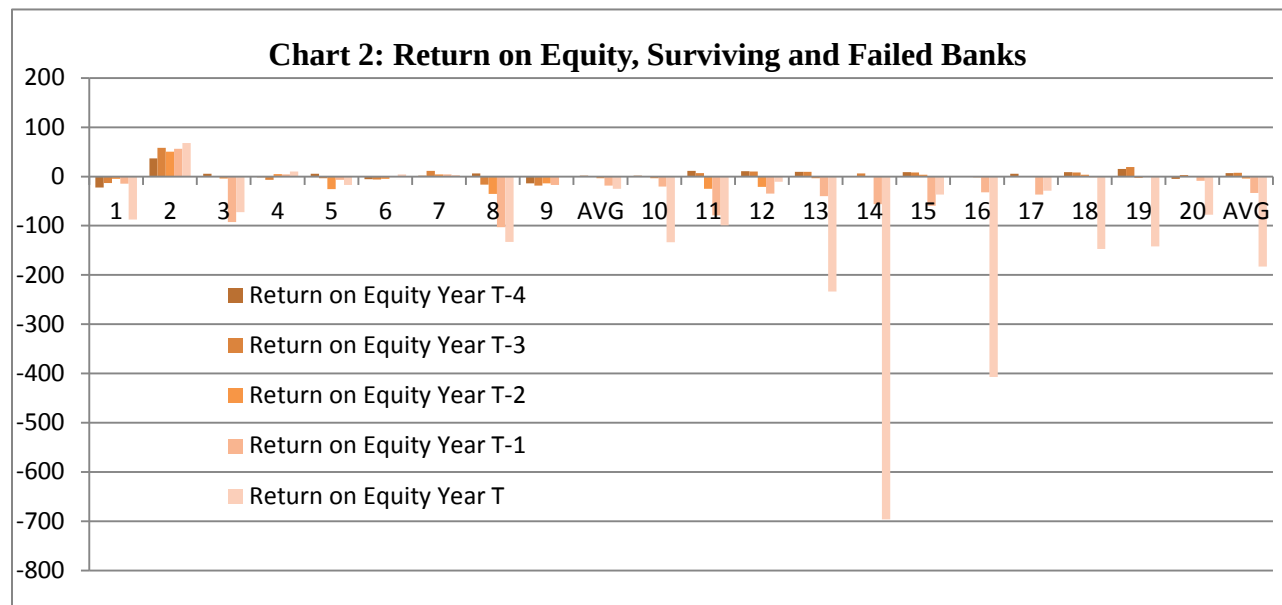


Table 2: Return on Equity, Surviving and Failed Banks					
Institution	Return on Equity	Return on Equity	Return on Equity	Return on Equity	Return on Equity
	Year T-4	Year T-3	Year T-2	Year T-1	Year T
1	-22.51	-13.41	-5.02	-14.86	-87.1
2	36.63	58.23	50.67	56.12	67.85
3	5.5	-0.03	-4.32	-92.61	-72.26
4	-1.62	-6.71	4.86	4.29	10.03
5	5.82	-3.3	-25.79	-6.73	-17.21
6	-5.29	-5.92	-4.84	1.37	4.6
7	1.67	11.35	4.61	4.38	3.16
8	6.48	-16.62	-35.08	-102.99	-133.03
9	-14.18	-18.59	-14.18	-17.26	0.71
AVG	1.388888889	0.555555556	-3.232222222	-18.69888889	-24.80555556
10	1.88	0.85	-3.43	-20.36	-133.37
11	11.17	7.09	-24.68	-79.01	-99.06
12	10.96	10.35	-20.98	-34.74	-10.94
13	9.39	9.48	-3.58	-40.19	-233.62
14	0.62	6.27	0.14	-56.38	-696.39
15	8.73	8.25	3.87	-59.64	-36.46
16			-1.87	-32.15	-407.23
17	5.61	1.29	1.3	-36.54	-28.96
18	8.67	8.24	3.35	-1.37	-147.22
19	15.23	19.06	-2.67	0.02	-142.19
20	-4.67	2.81	0.43	-8.46	-77.36
AVG	6.759	7.369	-4.374545455	-33.52909091	-182.9818182



Institution	Efficiency Ratio	Efficiency Ratio	Efficiency Ratio	Efficiency Ratio	Efficiency Ratio
	Year T-4	Year T-3	Year T-2	Year T-1	Year T
1	821.88	154.61	75.77	102.14	111.28
2	48.14	45.41	45.95	46.39	43.77
3	71.38	87.85	82.22	111.04	129.92
4	119.05	107.42	77.2	70.11	66.08
5	61.59	94.05	106.31	91.72	-0.91
6	606.09	194.57	122.79	92.15	75.35
7		73.4	72.87	79.14	75.18
8	79.3	83.74	-0.44	221.07	185.4
9		358.62	4837.5	94.83	100.75
AVG	258.2042857	133.2966667	602.2411111	100.9544444	87.42444444
10	89.74	85.76	94.94	96.1	110.16
11	85.57	71.93	62.99	108.89	280.66
12	63.26	62.94	85.71	127.35	14,386.96
13	67.79	63.89	71.81	160.78	390.95
14	52.91	51.68	98.63	1045.83	-72.78
15	67.99	69.53	76.62	142.3	124.73
16			617.86	201.75	-621.8
17	67.78	82.4	87.23	62.59	122.45
18	73.25	66.59	83.16	100.87	196.06

19	59.85	57.03	59.76	66.03	463.56
20	100	84.43	83.62	111.2	794.15
AVG	72.814	69.618	129.3027273	202.1536364	1470.463636

Table 4: Allowance to Total Loans and Leases, Surviving and Failed Banks					
Institut ion	Allowance to Total Loans and Leases Year T-4	Allowance to Total Loans and Leases Year T-3	Allowance to Total Loans and Leases Year T-2	Allowance to Total Loans and Leases Year T-1	Allowance to Total Loans and Leases Year T
1	1.27	1.23	1.6	3.93	3.31
2	1.27	4.09	7.75	8.71	6.67
3	1.12	1.29	1.87	4.05	5.43
4	1.01	1.06	1.11	1.49	1.31
5	1.16	1.9	2.18	3.86	2.7
6	1.03	1.01	0.91	0.98	0.9
7	0.95	1.06	1.51	1.71	2.12
8	0.82	1.53	3.03	3.73	4.57
9		1.57		4.71	4.71
AVG	1.07875	1.637777778	2.495	3.685555556	3.524444444
10	0.96	1	1.85	4.12	5.98
11	0.65	0.63	2.37	4.33	2.71
12	1.06	1.06	3.4	3.33	6.4
13	0.19	0.18	0.59	1.23	5.69
14	1.33	1.42	2.6	8.52	8.89
15	0.9	1.02	0.85	4.3	2.68
16			0.87	2.06	7.16
17	0.94	1.13	1.39	1.29	3.68
18	1.2	1.09	1.05	0.95	3.13
19	0.9	0.91	1.13	1.55	5.06
20	1.89	1.49	1.52	2.84	4.29
AVG	1.002	0.993	1.601818182	3.138181818	5.060909091

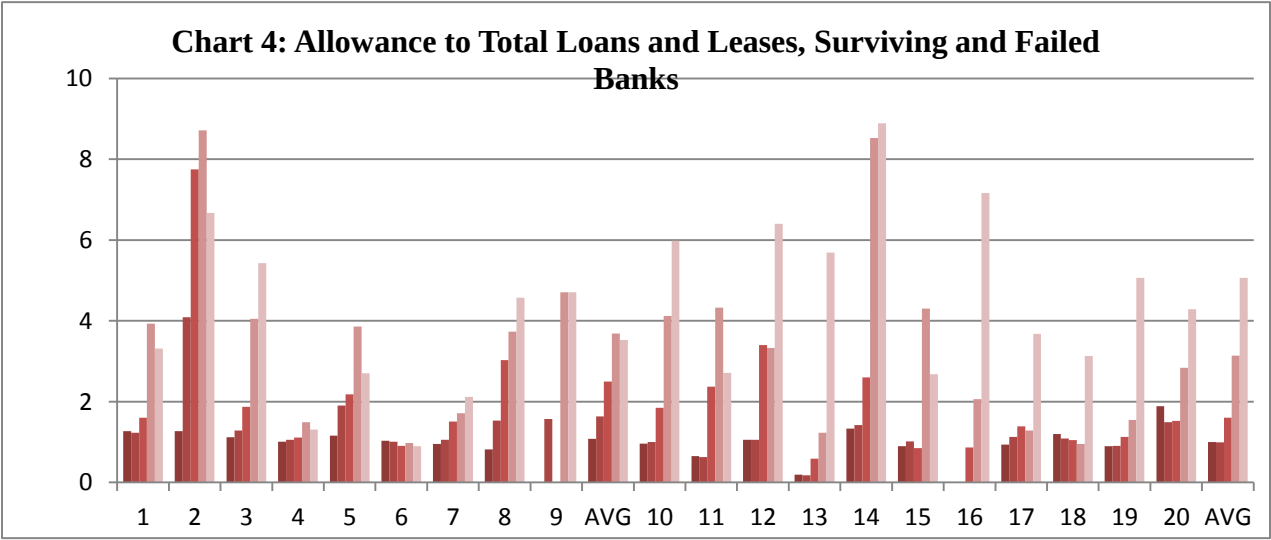
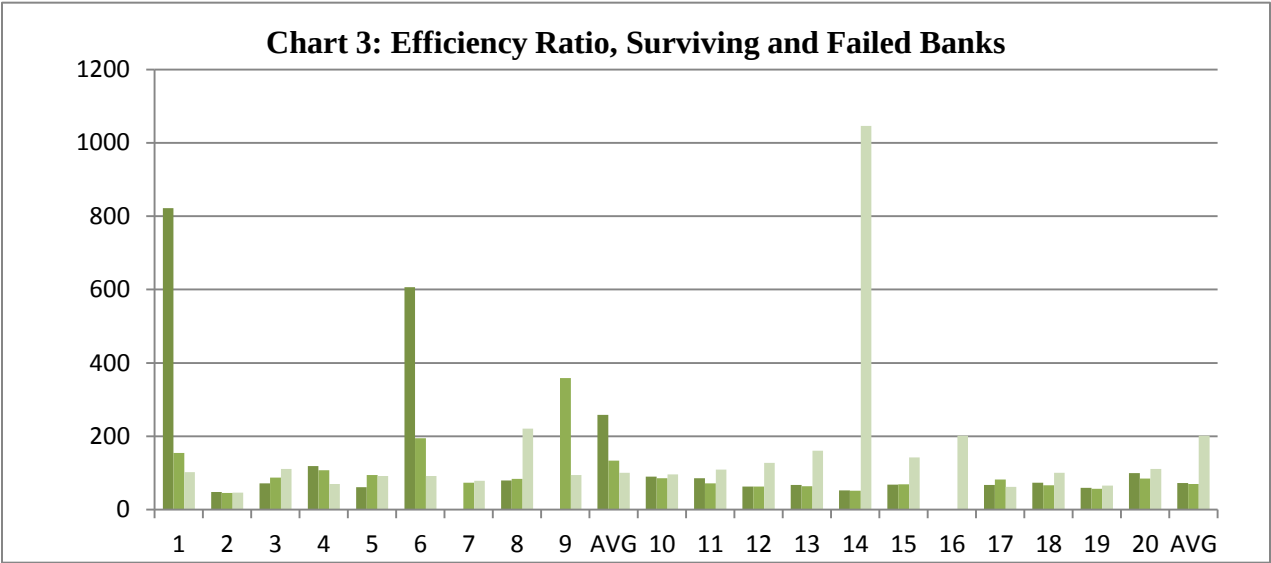


Table 5: Nonperforming Asset, Surviving and Failed Banks					
Institution	Nonperforming Asset Ratio Year T-4	Nonperforming Asset Ratio Year T-3	Nonperforming Asset Ratio Year T-2	Nonperforming Asset Ratio Year T-1	Nonperforming Asset Ratio Year T
1	0	0.51	7.29	5.29	7.1
2	0.67	1.15	2.02	2.52	1.71
3	0	0.45	4.31	11	14.17
4	0	1.55	0	0.03	0.11
5	0	2.99	11.33	9.66	3.58
6	0	0	0	0	0
7	0	1.41	3.23	0.85	2.8
8	0	2.08	3.19	6.25	6.51
9		6.94		7.99	7.99
AVG	0.08375	1.897777778	3.92125	4.843333333	4.885555556
10	0	2.46	4.03	6.9	12.45
11	0	0.15	3.9	11.63	17.04
12	0.67	0.55	1.69	16.01	26.48
13	0	0.26	2.98	10.48	9.17
14	0	0	11.39	31.18	26.62
15	0	1.32	2.03	12.83	17.91
16			0	12.2	19.49
17	0	0	0	1.78	7.19
18	0	0.36	0.59	4.1	10.71
19	0.02	0	0.5	5.91	35.02
20	0	0	0.23	6.2	18.96
AVG	0.069	0.51	2.485454545	10.83818182	18.27636364

Chart 5: Nonperforming Asset, Surviving and Failed Banks

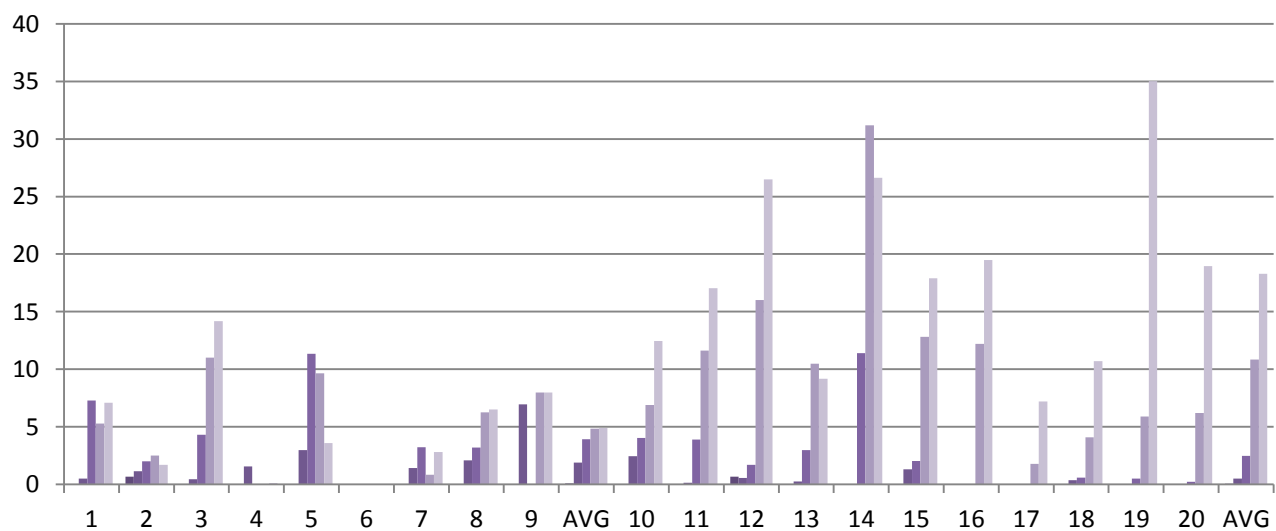


Table 6: Loan to Deposit Ratio, Surviving and Failed Banks

Institution	Loan to Deposit Ratio	Loan to Deposit Ratio	Loan to Deposit Ratio	Loan to Deposit Ratio	Loan to Deposit Ratio
	Year T-4	Year T-3	Year T-2	Year T-1	Year T
1	85.74	97.1	69.16	63.69	48.61
2	374.2	512.1	409.16	285.27	245.72
3	103.56	118.03	113.36	103.7	99.65
4	252.43	716.11	227.94	184.4	205.75
5	78.1	108.37	79.95	86.78	80.83
6	196.62	129.01	113.03	58.55	56.42
7	82.33	79.16	82	69.15	70.84

8	116.1	113.93	93.95	70.21	71.63
9	0	155.88	0	63.33	63.33
AVG	143.2311111	225.5211111	132.0611111	109.4533333	104.7533333
10	106.21	98.72	82.49	78.79	79.86
11	96.72	95.68	100.06	86.85	79.45
12	102.72	103.77	94.58	88.31	67.67
13	114.13	121.28	135.32	113.99	81.04
14	133.08	119.22	118.73	97.74	61.4
15	109.08	113.93	114.39	99.49	78.27
16			238.47	86.67	53.33
17	94.2	113.71	103.01	135.74	74.04
18	90.9	90.24	105.72	107.49	82.33
19	100.53	107.99	101.81	98.42	60.27
20	87.1	85.82	102.86	139.57	52.2
AVG	103.467	105.036	117.9490909	103.0054545	69.98727273

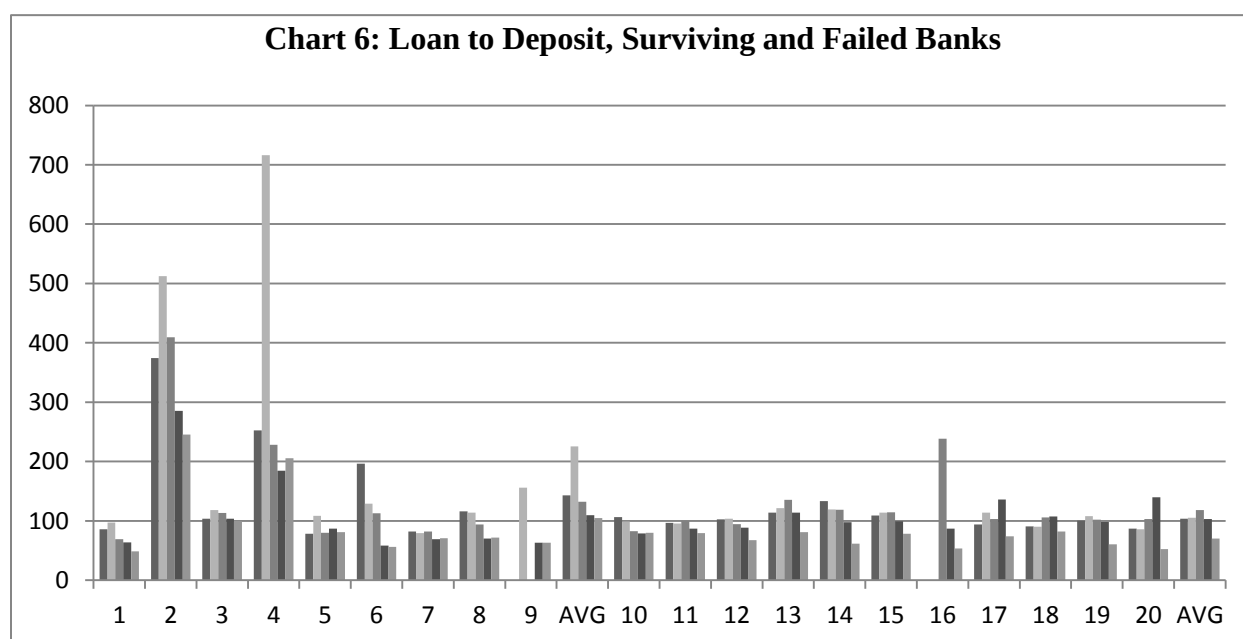


Table 7: Capital Ratio, Surviving and Failed Banks					
Institution	Capital Ratio Year T-4	Capital Ratio Year T-3	Capital Ratio Year T-2	Capital Ratio Year T-1	Capital Ratio Year T
1	166.71	33.05	15	11.09	8.97
2	60.43	70.25	66.12	71.4	75.27

3	14.91	10.48	11.18	7.38	4.86
4	37.51	12.6	12.58	11.98	10.48
5	24.89	22.01	21.26	20.69	18.97
6	284.3	108.2	32.38	26.27	24.46
7	12.05	12.51	12.63	13.59	13.94
8	11.56	10.32	10.68	4.78	4.09
9	388.68	80.12	388.68	14.35	14.35
AVG	111.2266667	39.94888889	63.39	20.17	19.48777778
10	13.74	10.03	10.6	8.73	3.79
11	11.47	10.33	9.39	6.07	3.06
12	12.1	11.06	10.46	9.59	-1.49
13	12.4	12.05	11.91	15.17	2.99
14	30.84	21.52	21.56	17.81	0.73
15	10.95	10.44	10.57	6.78	7.06
16			51.57	15.4	-4.34
17	10.19	13.45	14.38	10.04	6.92
18	12.95	16.56	13.68	11.09	5.72
19	10.3	10.07	10.73	10.9	0
20	23.63	14.98	36.76	19.63	15.77
AVG	14.857	13.049	18.32818182	11.92818182	3.655454545

Chart 7: Capital Ratio, Surviving and Failed Banks

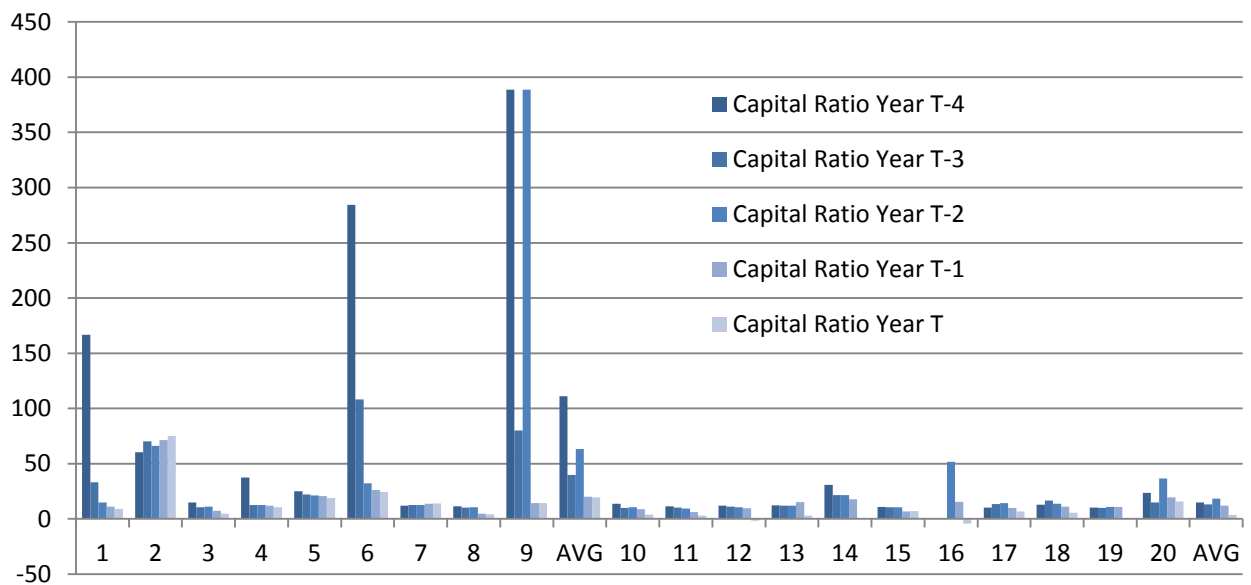


Table 8: Yield of Earning Assets, Surviving and Failed Banks					
Institution	Yield of Earning Assets	Yield of Earning Assets	Yield of Earning Assets	Yield of Earning Assets	Yield of Earning Assets
	Year T-4	Year T-3	Year T-2	Year T-1	Year T
1	2.71	6.11	5.11	6.96	4.39
2	11.49	9.33	10.92	12.99	10.25
3	8.33	6.93	5.62	4.99	4.49
4	7.98	4.75	4.3	5.11	4.73
5	8.13	6.18	5.22	5.12	5.31
6	1.01	4.84	5.84	4.94	4.47
7	7.83	6.92	5.8	5.05	4.76
8	7.96	6.99	5.09	4.31	4.31
9	0.32	4.98	0.32	5.78	5.78
AVG	6.195555556	6.336666667	5.357777778	6.138888889	5.387777778
10	7.83	7.22	5.65	5.24	5.11
11	7.25	8.08	6.12	4.43	4.5
12	8.8	8.8	7.35	5.21	4.19
13	5.88	6.46	6.02	4.71	3.56
14	10.14	9.56	7.61	5.09	4.66
15	8.17	8.3	8.43	6.58	5.16
16			0.21	7.17	4.01
17	6.41	8.37	9.04	7.75	5.71
18	7.3	8.63	8.8	7.45	6.37
19	7.9	9.05	9.48	8.58	5.52
20	6.17	7.52	8.27	7.2	3.55
AVG	7.585	8.199	6.998181818	6.31	4.758181818

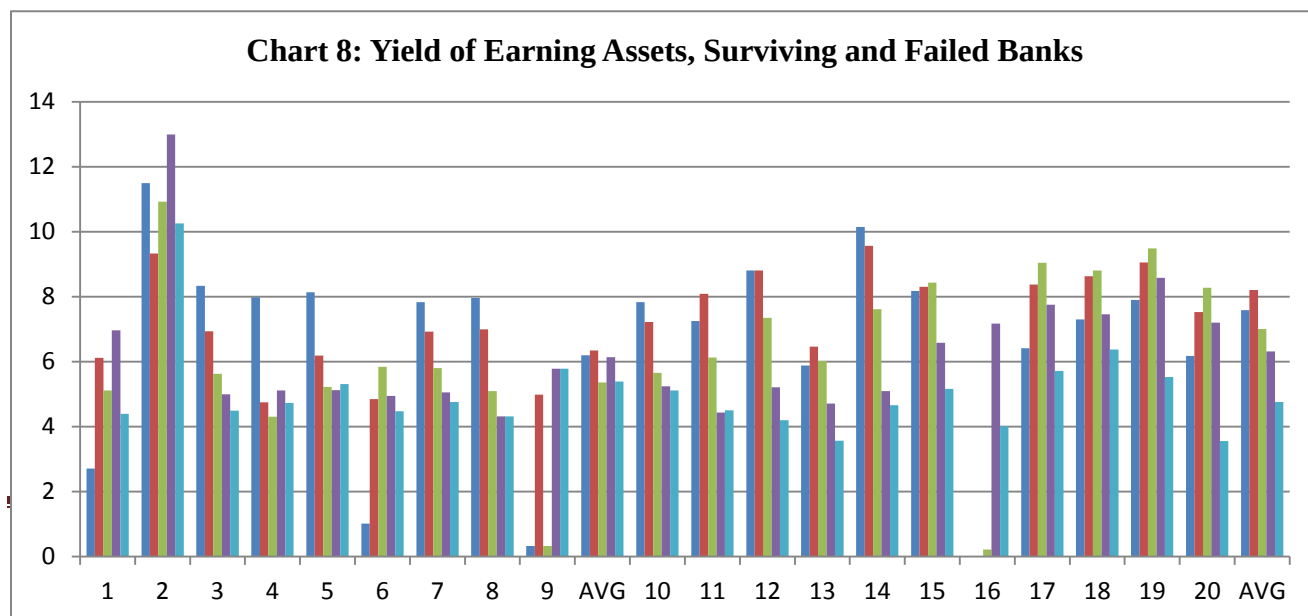


Table 2, as pictured above, shows the ROE for the eleven failed institutions in Arizona 2009-2011, next to nine comparable institutions that survived. Parallel to the numbers that were seen in Table 1 with the ROA, the numbers begin to turn negative in Year T-2. The difference in this ratio for the surviving banks is the fact that there is no increase in the ratio approaching the year to date, as was seen in the ROA. That is because the owners are not making a return, the return is being put back into the banks to help their survival. As seen from Year T-4, a typical Return on Equity for banks in this region was around 6.7 in failing banks, and 1.38 for surviving. Coming into Year T-3 most of the failed banks continued with profits by increasing their ROE. This was seen in the ROA as well, both averages increased from Year T-4 to Year T-3. Then getting closer to the year of failure the data shows how quickly the averages dropped, but far into the negative with ROE. The ratios of ROA and ROE are very closely related to see similarities in the data of the institutions is expected. It shows that both surviving and failed institutions began to use the earnings to try to save their bank.

The failed institutions mirror the average fairly closely except for the two institutions that seem to show differences, which are institutions 14 and 16 with plummeting numbers during the year of failure. These institutions help to emphasize how drastically the changes that occurred in the economy changed the financial status of the banking industry as well. As seen above, profitable and nonprofitable banks alike were forced into failure. This chart reflects how quickly all the institutions were affected by the changes in the economic system. One bank that was very successful in ROE the entire crisis was institution 2. This is an interesting trend to observe considering its survival.

There is an interesting developing trend in the data from the efficiency ratio that runs the opposite of the other two ratios already looked at above. The reason for this is found in the composition of the calculation of the efficiency ratio. If the efficiency ratio is increasing, it means that costs are increasing for making loans. On the other hand with decreases it shows that management is finding a way to reduce costs on loans. As shown by the surviving institutions Year T-2 the institutions began to have problems, but were able to significantly reduce costs in Year T-1 and Year T on average. The failed institutions are not the same. This data mirrors the above data showing increased profitability until Year T-2. This is when the surviving institutions made decisions that saved their institutions. On institution number twelve and nine the reader can see that the final year of failure was excluded from Chart 3. In this case the data which can still be seen in the table is an extraordinary case that distorted the values that were relevant in Chart 3.

As seen above in Table 4, as the institutions get closer to Year T, the percentage of loans in the portfolio that have default risk increases. As seen with the earlier ratios between Year T-4 to Year T-3, the average ratio actually goes down showing profitability and a positive lookout on the future within the loan portfolio in the failing institutions. This continues to support evidence that banks were building up their profitability until problems really began around Year T -2. This year was interesting because some institutions only slightly increased their percentage while others actually lowered their percentage of likely defaults in the failing banks. The surviving banks show that they gradually increased the amount based on the average. In Year T some of

the surviving banks are finally able to reduce the account on average. These small differences in the ratios between surviving and failed banks help to illustrate how being proactive about problems may change the outcome.

Because this ratio is a predictor of defaulting loans according to the bank managers, it is very reflective on bank industry outlooks. In Year T-2 is when most of the ratios begin to reflect problems in the financials of the institutions that failed. As seen in Chart 4 the last two years, Year T and Year T-1, almost double the amount of loans were predicted to default compared to the surviving banks that increased incrementally on average. This should have served as a large indication that the banks were headed in a bad direction because such a huge increase in amount of estimated defaulting loans. This data supports the previous data from above that shows how banks were beginning to perform as they approach failure

The next ratio that is reflected in the Table 5 is known as nonperforming asset ratio. As mentioned above, this ratio is very closely tied with the above ratio of allowance to loan and leases ratio. The nonperforming assets are the assets that are actually not performing, whereas the above ratio shows the bank's predictions on the loan defaults. The definition of nonperforming is that the customers have not been making payments for over 90 days. What can be seen from comparing the two ratios is that the actual number of nonperforming loans was lower during Year T-4 than predicted by management. This is good because nonperforming assets have not actually defaulted yet, they are just reflecting trouble. As the institutions get closer to failure the numbers that were predicted by the bank managers quickly begin to fall short. The nonperforming assets began to double or almost triple what was estimated in failed institutions. Along with this large increase compared to the account above, the ratio from one year to another was close to doubling between certain years with the failed institutions. This is reflective on how uninformed bank management was on the situations with the failed institutions. The surviving institutions appear to be much more reactive to changes compared to the failed banks based on these two ratios. Ratio four and five are two of the most important ratios to watch together to have an indication of problems that are beyond the normal defaulting loans.

The loan to deposit ratio is very important because it is a reflection of how liquid the institutions are by comparing the outstanding loans to deposits. Because of the times this study focuses on there is an expectation for higher leverage of banks. The average loan ratio around 2008 (a year right in the middle of this data) was between 56% to 170% in the banks all over the United States. Table 6 shows that the percentages of these institutions are right around the middle of this data, except for the average of Year T-3 for surviving banks. The concern is clearly that these institutions have overleveraged, which at the time was normal for the institutions. The problem occurred when the market crashed because then the equity that was leveraged against was no longer worth the value of the loan. The most interesting part about this data is that it is shaped as a u-curve, meaning that the averages of the institutions peaked in Year T-2 for failing banks. The surviving banks appear to have peaked in Year T-1. The surviving banks appear to have much worse ratios previous to Year T-2 than the failed banks. This may be the reason that they were able to be more reactive because they had more indications. At this

point institutions must have begun lowering the amount that they would leverage because they were having problems. Year T-2 is where the other ratios began to show some changes as well. Notice that institution number 2 that had some of the highest returns in earlier ratios is also one of the highest leveraged institutions in the surviving banks.

The capital ratio is the next set of data that is analyzed. This ratio shows how much leverage the institution is able to take on. The lower the ratio, the less risk the bank can sustain because the losses will be taken from capital. As seen in Table 7 the average among the institutions in this study peaked around Year T-2 in the failed institutions similar to the above ratio, the loan to deposit ratio. Because these ratios are similar in the information that they give the data for each mirror each other closely. This ratio is one of the most important ratios looked at by regulators to show the health of the institution. It has become a key part in rebuilding harmed financial institutions, as well as ensuring adequate safety and soundness. It is important to see what levels the failed institutions began with compared to the surviving institutions. The highest capital levels the failed banks attained were 2% lower than the lowest average the surviving banks held. This may have been another essential part in the saving of the surviving banks.

The yield on earning assets is important to show the amount of revenue the loans and other assets that were still generating to help sustain the bank. The data reflects results that continue to support the other findings. The return the institutions were making on average actually increased between Year T-3 and Year T-4. This is very similar to the other data, showing results that the institutions were becoming more profitable with the growing economy. Around Year T-2 the first warning signs become evident as a substantial decrease in the average occurs. From that point the average return continues to fall in the failing banks. The failing banks consistently show more dramatic changes in the financial ratios on average than the surviving banks. This large flexibility in profitability along with large increases in defaulting loans in failed banks is what ultimately led to multiple bank failures around the country. Keep in mind the differences in the variations of the data more than likely can be attributed to the fact that they are in different stages of the financial crisis depending on what year the institution failed in. This can cause the data to look as if institutions that failed earlier were more profitable, but it is only because the years of 2005-2009 held better economic conditions than the later years up till 2011 seen in other banks.

The financial ratio analysis had conclusive results; defaulting loans that were losing value harmed the highly leveraged institutions from the recently booming economy. This data shows that bank managers were preparing for long term growth and profitability when the real estate market collapsed, which hurt their financial statements beyond repair. As seen through the various charts and tables above, the signs of failure or at least reduced profitability were seen around Year T-2 on average. The banks that managed to survive this financial crisis took corrective action because some of their ratios actually reflected worse than the failed banks. This shows that around the time ratios begin to reflect negative information management should take immediate steps to correct the problems. This is especially true in cases where ratios double or

triple in value between one year to another. These findings show how the changes were very sudden in the financial data.

Conclusions:

To understand what happened in the Financial Crisis of 2008 it is important to understand not only what happened during the crisis in the state of Arizona, but across the United States. A part of understanding the crisis includes learning about some of the regulatory changes that have been made in the past. The best way to help avoid crisis or to at least minimize the effects as much as possible is to examine past financial crisis. In the Financial Crisis of 2008, fewer banks were lost in failure, but large amounts of assets were lost because of the larger size of the banks (Chorafas 2011). “Capital can help build confidence,” as stated by Kluza in 2011. This is the key to rebuilding the economy. Because of the moral hazard problem the best thing to be done is increased regulations for the consumers, which the Federal Reserve is currently trying to focus on with the use of the Consumer Compliance Division (Stackhouse 2011). The bank management has a job of “Preservation of the Assets” which is the duty that needs to be focused on at this point in time. The mortgage market overall fell 20 to 40% within the crisis of 2008, and there is no instant recovery for those numbers (Chorafas 2011). The financial ratios show that banks were getting themselves into trouble without fixing their problems. In the future economic troubles can occur, but being more responsible with lending can reduce the effects the tough economy has on banks. Overall the changes that need to occur include diversification of assets in banking, increased regulations on lending, and a better understanding of the duties of a financial intermediary for the consumer. This crisis is still affecting economies worldwide, and is very similar to past problems except that globalization is multiplying the troubles beyond the original local origins. The only way to stop future financial crises is to make changes to the current system.

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Student Perceptions of Credibility and Enhancing the Integrity of Online Business Courses: A Case Study

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Abstract

Students enrolled in business courses were asked to complete a survey questionnaire pertaining to cheating in online business courses. Students were asked about their perceptions of cheating in online business courses as well as their opinions regarding the credibility of online courses and the effectiveness of different control techniques that may be used to prevent cheating. Eighty-one percent of respondents indicated that they had knowledge of or had observed cheating occurring in an online business course, 50 percent indicated they believe that there is more cheating in online courses (compared with traditional courses) and 34 percent indicated that online courses are less credible than traditional courses. Requiring paper-based testing in a proctored classroom was deemed by respondents to be the most effective technique to control cheating. The authors recommend the use of online assessments in a testing center.

Introduction

Online course enrollment at U.S. colleges and universities grew by nearly one million students from fall 2008 to fall 2009, a 21 percent increase, with approximately 5.6 million students enrolled in at least one online course in fall 2009 (Allen and Seaman, 2010). One concern of many faculty and administrators relates to the academic integrity of such courses compared with traditional face-to-face courses. For example, faculty and administrators at the University of Arkansas are exploring ways to retain academic integrity in online courses after a purported cheating case in 2009 where a student was accused of taking online exams for other students in return for cash payments (Sims, 2011). Extensive research has been completed regarding cheating in traditional face-to-face courses, for example, (Bell & Whaley, 1991; Cizek, 1999; Whitley, 1998; Lathrop & Foss, 2000; McCabe, Trevino & Butterfield, 2002; Dick et al, 2003) but research regarding cheating in online courses is limited (Rowe, 2004; Grijalva, Nowell, & Kerkvliet, 2006; Lanier, 2006; Underwood & Szabo, 2006; Harmon & Lambrinos, 2008, Stuber-McEwen, Wiseley, & Hoggatt, 2009; Watson & Sottile, 2010). Many studies of cheating in online courses have attempted to measure and analyze actual cheating of students, with limited reporting and analysis of demographic data (Grijalva, Nowell & Kerkvliet, 2006; Naude & Horne, 2006; Watson & Sottile, 2010). Other studies have addressed cheating solely from the instructor's or administrator's perspective (Tastle, White & Shackleton, 2005) or have provided very limited information regarding student perceptions of cheating in online courses (Kwun, Alshave & Grandon, 2005). This study is different from earlier studies of cheating in online courses in several ways. The authors gathered certain demographic data related to respondents not gathered in several other studies, such as gender, GPA, academic classification,

employment, and age. Thus, this study identifies similarities and differences in perceptions and opinions related to the different demographic variables of the respondents.

The authors surveyed students enrolled in business courses and asked them to provide information regarding cheating in online courses that they had actually observed or that they believed had occurred in online courses. So, the data gathered in this study represents respondents' perceptions of cheating in online courses. Additionally, students were asked to provide their opinions regarding the effectiveness of different possible techniques that may be used to prevent or deter cheating in online courses as well as their opinions regarding the credibility of online courses.

An understanding of student perceptions and opinions is important for several reasons. First, faculty and students may not have the same perceptions of cheating in online courses. Faculty may believe that cheating is easier to undertake compared with student perceptions of cheating (Kwun, Alshave & Grandon, 2005). Second, students may have greater exposure to or knowledge of actual academic dishonesty and therefore their perceptions of cheating may be more representative of the true state of cheating compared with the perceptions (experiences) of faculty and administrators (Rowe, 2004). Finally, one could argue that the ultimate long-term success or failure of online education may hinge not only on the actual credibility of such courses but also the perceived credibility of such courses among students. Acceptance of online courses may likely suffer if they are perceived to be more susceptible to cheating even if, in substance, online courses are just as secure from cheating as traditional face-to-face courses. To fully address the issue and thereby begin the process of enhancing the quality and credibility of online courses, faculty and administrators should have an understanding of the perceptions and opinions of students regarding cheating in online courses. While this study relates to just one survey of students at a single university, it should still be useful to faculty and administrators who are interested in online instruction.

The authors surveyed business students attending Henderson State University (HSU). HSU's School of Business has significant experience related to online courses, that is, it offers a significant number of online courses each semester and has offered such courses for nine years. Additionally, HSU has a fairly significant number of students enrolled in and faculty teaching online courses. One author was the first faculty to offer an online course at HSU (summer 2002). Since then, an increasing number of faculty at HSU have developed online courses using various tools to create content and deliver it via the web including, Tegrity, Camtasia, Wimba, WebCT, Angel LMS, etc. HSU's business school's spring 2011 course offerings included 50 traditional courses, 15 partially-online courses, and 7 fully online courses.

With respect to content delivery, most of the online courses in the business school are somewhat similar and may be characterized in general as providing course content via video lectures and/or other digital media such as PowerPoint presentations. However, student assessment techniques vary greatly among faculty and across courses in terms of type of assessment used—exam, quiz, or project; delivery of assessment—in-class or online; location of assessment—campus lab, classroom, or off-site, access to assessment—timed or untimed,

scheduled date or unlimited access, etc. For example, some instructors have assessed students by the sole use of exams and quizzes delivered to the student via computer at an off-site location with no oversight or proctoring. Other faculty required students in online courses to complete exams and quizzes in a proctored classroom environment identical to traditional courses. Still other faculty used a variation of the two extremes, requiring students to complete exams in a proctored classroom but allowing quizzes and homework, which make up a smaller percentage of overall course grades, to be completed on-line without proctoring. It is the authors' opinion that the diversity of assessment techniques is probably indicative of the state of student assessment in online courses at many other business schools. That is, the authors believe that many of the business schools that offer online courses probably do not utilize a standardized method of assessment that is required to be used in all online courses. Therefore, even though the findings of this study may not be extrapolated to other business schools, the results should still be useful to faculty and administrators interested in online education.

One problem with having so many different assessment techniques is that it may contribute to the belief that there is a greater likelihood of cheating occurring in online courses. Intuitively, people may expect that a significant variation of assessment techniques across online courses may result in many different possible levels of student cheating, from extensive to minimal. For example, it seems likely that most people may feel that there is a greater probability that students are more likely to cheat, and may cheat to a greater extent on exams offered online at an off-site location, like a dorm room, compared with those students that must complete online exams delivered through a computer in a campus lab in the presence of a proctor. Further, such extensive variation in student assessment techniques may contribute to the perception that there is the potential for many types of actual student cheating, such as the use of prohibited materials like textbooks and notes in completing an online exam or assistance from another individual. Again, it seems logical that many would expect that as the assessment becomes more removed from the direct control of the professor, then the types of cheating employed by students would increase. For example, in a traditional classroom setting, compared with online delivery, one may believe that, generally, students are somewhat more limited in the way they may possibly cheat, for example, like a student using crib notes or looking onto the paper of another student. But if a student is allowed to complete an untimed, online exam in his dorm room then most people would probably be of the opinion that that there are many scenarios of possible cheating— like the student having someone else complete the exam for him, or the student having others look up answers to exam questions in notes or textbook, or the student copying material from the web and using it in lieu of his own written response to an essay question.

Method

The authors surveyed students enrolled in business courses at HSU during the spring 2011 semester. HSU is a small, public, liberal arts college located in southern Arkansas with a total enrollment of approximately 3,500 students and a business school enrollment of about 340 students (spring 2011). Students were asked, but not required, to complete a paper version of the questionnaire which was administered in the classroom. A total of 184 useable

questionnaires were collected; a response rate of 54 percent of spring 2011 business school enrollment.

The two-page survey questionnaire was comprised of four sections. Section one was designed to gather demographic data about the respondent. Section two gathered data regarding the respondent's perceived knowledge of cheating in online courses. In section three, the respondent was asked to evaluate the effectiveness of different possible techniques that may be used to prevent cheating in online courses. Finally, section four gathered data about the student's opinions of the credibility of online courses versus traditional face-to-face courses.

Results

Table 1 summarizes the demographic characteristics of the students responding to the survey. Of the 184 students responding to the survey 52 percent were male and 74 percent were under the age of 25. Of those responding, 21 percent were sophomores, 28 percent were juniors and 51 percent were seniors. Respondents also reported GPA's ranging from less than 2.0 to above 3.5. Regarding employment, 36 percent of respondents indicated that they work part-time and 29 percent work full-time. Finally, in terms of online courses previously completed, only 4 percent of the 184 students indicated that they had not completed an online course while 60 percent of the students responding indicated that they had completed four or more online courses. So most of the respondents could be considered to have had relatively significant direct experience with online courses.

Student Perceptions

To gather evidence regarding student perceptions of cheating in online courses, section two of the survey asked students to respond to several questions regarding their knowledge or observation of different types of cheating (Table 2). Eighty-one percent (149) of all respondents indicated that they had observed or had knowledge of cheating occurring in online courses. The 149 students indicating knowledge of cheating were also asked to indicate the type of cheating that had occurred. Regarding receiving help with an online exam, 50 percent of students indicated that they had knowledge of such cheating. Sixty-eight percent indicated that they had knowledge of students receiving help with online homework. Fifteen percent of the 149 respondents indicated that they had knowledge of another person completing an exam for another student while 21 percent indicated they had knowledge of another person completing online homework for another student. Another area of concern was the degree to which students indicated knowledge of the use of prohibited materials such as notes and textbooks when completing online exams/quizzes. Forty-two percent indicated knowledge of someone using prohibited materials when completing an online exam while 41 % indicated knowledge of material from the web being used to complete an online exam. Overall results indicate a rather high level of student perception of cheating occurring on online assessments and a rather significant range of activities. That is, the perception seems to be that there is a fairly significant incidence of cheating occurring on all of the different types of assessments used.

Of particular concern was the high percentage noted with respect to students receiving help with online exams and quizzes, 50 percent and 62 percent, respectively. Such assessments may comprise a significant portion of a student's overall course grade and if the student is in fact receiving help with an online exam/quiz then the assessment, as a measure of the student's learning, may be meaningless. To examine the perception of this particular type of cheating in more detail, percentages were computed for respondents observing or having knowledge of students receiving help on online exams/quizzes to determine if the perception of this type of cheating was in some way correlated with factors such as gender, age, time pressures (part-time or full-time workers), intellectual attribute (GPA), etc. Overall, results indicate that students' perceptions of this type of cheating is fairly evenly distributed across all demographic variables. As might be expected, overall, seniors had the highest level of perceived cheating and sophomores the lowest. This seems logical as one would expect that as students progress through their academic programs that they will likely be exposed to more instances of cheating. One interesting finding was that, overall, the highest perception of this type of cheating according to GPA was reported in the 3.0-3.49 GPA category, 60 percent. One possible explanation for this result is that students in this GPA range are more competitive and therefore have greater awareness of other students' activities. In summary, most respondents indicated that they believe that there is cheating occurring in online courses across all of the different assessments used, exams, quizzes and homework.

Section two of the survey also allowed respondents to provide written comments about their knowledge of cheating that had occurred in an online course. Though only four responses were received, the comments are insightful and interesting.

- I knew of a student at another school who paid someone to take an entire class for him.
- People are printing off old quizzes to help on the online exams, often the same questions.
- People get together and compile answers as they take the quiz/homework/tests.
- Guy had purchased a solving macro for online mathematics and loaded all variables and let the PC take his test.

The final part of section two of the survey gathered evidence regarding student perceptions of cheating in different disciplines. Students were asked to rank the degree of cheating they believed to have occurred in each of seven different business disciplines, with responses ranging from "1" indicating the most cheating to a response of "7" indicating the least cheating. Tables 3 and 4 show that the greatest perception of cheating among respondents was related to business information systems (BIS), an average ranking of 2.7 and receiving 34 percent of all the "1" rankings made by students. Accounting followed with a ranking of 3.6 and percent response of 23 percent. Lowest levels of perceived cheating reported by HSU students related to marketing, 4.5, (3%) and general business courses, 4.8, (11%). The results are likely a function of the number and duration of online course offerings in each discipline. If a particular discipline offers relatively fewer online courses compared with other disciplines then one would expect the perception of cheating to be less compared with other disciplines offering many online

courses. HSU's school of business offers many online courses in BIS and accounting, fewer in economics and even fewer in marketing and general business. Further, the Accounting and BIS departments have offered online courses for many years while online courses in marketing and general business have only recently been developed. Additionally, results may be a function of factors such as, type of assignments—online exams, writing assignments, homework, type of material—quantitative versus non-quantitative and type of assessment techniques used, online exams versus in-class exams. Still, the results are consistent with the notion that greater exposure to online courses is correlated with perceptions of cheating.

Student Evaluation of Techniques to Prevent Cheating

Section three of the survey gathered evidence regarding student assessment of techniques that may be used to prevent cheating in online courses. Students were asked to judge six different techniques as effective or not effective, or indicate that they had no opinion (see Table 5). Generally, the most effective technique was believed to be requiring examination in a proctored classroom/lab setting. The most effective technique indicated was testing in a traditional classroom setting where a proctor is present--75 percent of respondents ranked this effective and only 8 percent ranked it ineffective. Sixty-eight percent of the respondents indicated that they believed requiring that online exams be taken in a proctored lab would be effective while 66 percent indicated as effective the use of random question generation on online exams where every exam is uniquely different. Interestingly, the techniques receiving the lowest approval rating was the use of a web cam that may be used by the instructor to watch the student completing an online exam and delivery of online exams on the same date and at the same time? Only 49 percent of respondents believed that these would be effective techniques.

Finally, in section four of the survey, students were asked to indicate whether they agreed or disagreed (or had no opinion) with respect to several statements regarding the credibility/integrity of online courses (Table 6). Generally, results indicate that student perceptions regarding academic integrity of online courses is fairly negative. Student responses to the statement "There is more cheating in online courses compared with traditional courses" were 50 percent agreeing, 12 percent disagreeing and 38 percent indicating that they had no opinion. Such responses seem to be contradicted when compared with responses to the statement, "Online courses are less credible than traditional courses." Only 34 percent agreed compared with 43 percent that disagreed. One possible explanation of these responses might be that many students do not necessarily correlate cheating with decreased credibility. Respondents were divided with respect to the statement, "Because of cheating, students learn less in online courses." Thirty-six percent agreed while 33 percent disagreed and 31 percent had no opinion. One area of somewhat general agreement was found in responses to the statement, "There is greater opportunity to cheat in online courses," with 64 percent agreeing and only 13 percent disagreeing. This seems surprising, again considering that only 34 percent of respondents indicated agreement with the statement that online courses are less credible than traditional courses. However, these seemingly contradictory results may be explained by the idea that opportunity alone does not lead to trust violation. So, it seems that some of the respondents may believe that just because there is greater opportunity for cheating in an online course it does not

necessarily mean that more cheating is actually occurring. Finally, with regard to the statement, “Most cheating in online courses is planned in advance,” only 32 percent of respondents agreed with this statement while 23 percent disagreed and 45 percent had no opinion. This is interesting as the authors expected a higher rate of agreement with this statement. One would expect that if a student cheats on an exam, for example, that he or she would have planned such in advance. One explanation might be that many students who are aware of cheating are at the same time unaware of the individual’s methods and approaches to cheating. Overall, most respondents believe that there is greater opportunity for cheating in online courses, half believe that more cheating is actually occurring and approximately one-third believe online courses are less credible than face-to-face courses.

Section four of the survey also allowed respondents to provide any final written comments that they wanted to make about online courses in general. Student comments were numerous but can be categorized into several themes. One theme indicated was a preference for online courses compared with traditional courses. Student comments:

- I have taken many online courses and find them very helpful since I live so far away and I am not rushed to make it to class.
- I like online classes because I work and go to school full time. I don’t cheat because I want to learn the information.
- Online extremely useful to students that commute or have very busy schedules. Greater flexibility.
- Online courses are wonderful for me because it allows me to work from home more (I commute an hour and a half to school).
- I believe online courses provide more homework practice which in return sinks and stays in the brain better.
- I enjoy online courses. I can work at my own pace and at designated time. Cheating is possible but not any more likely than a traditional class.
- There should be more online courses. It makes it easier for students who find it difficult to balance school, work, home life.

A second theme that emerged was a negative perception of online courses. Student comments:

- I don’t feel that they are as effective as courses taught in the classroom. The reason we go to college is to be taught by professionals. Online courses you teach yourself and I strongly feel like the material learned is not equal to that of what would be in the classroom.
- I believe that online courses are a waste of time. I actually get upset if I signed up for an actual class and the teacher tells me it has been turned into an online class or 50% of the work will be online. Everyone has their own way of learning and I personally never retained anything that I “learned” online. Online learning seems to be an easy way for teachers to teach/grade...they don’t. The computer and system does it all for them.

- I personally do not like online classes because it is difficult to receive help. If I pay almost \$4,000 a semester, I want to be able to raise my hand and receive help.
- Useful for some purposes but less effective in general. Interaction in class very helpful.
- I don't like online course. It is boring and I don't get as much as I do in classroom.

Another theme was related to cheating. Student comments:

- In my online course cheating would be impossible. Each student had different companies and had to write papers on that company.
- I have not heard of any cheating in business courses. Myeconlab for macroeconomics is great and cheating isn't really an option I don't believe.
- If a student wants to cheat they can in almost any class, it is up to the student to be honest and do the right thing.
- The ones who do cheat are usually taking said online classes because they are required for their major but the student has no interest in the class.
- You can't expect students not to cheat (insure their future), when unsupervised.
- Why must you ask me if I'm cheating? Get professors that make kids want to learn then you won't have to worry about us cheating.
- I have not witnessed cheating in business online classes, however, I have seen cheating extensively in other areas.
- Online classes may make it easier for those who would cheat in any circumstance, but I believe students who want to learn will do the work for themselves.
- If you are worried about cheating in an online class don't create one and it's not cheating its helping one student might have the answer another don't have.

Other student comments regarding online courses:

- Webcam is unreasonable. If I'm at home then you shouldn't watch.
- Webcam seems effective but is invasion of privacy.
- For a class to be truly online, tests should be too.
- I think any course could be partially online but tests should be proctored.

Recommendations

To enhance the integrity of online courses, faculty and administrators should consider employing several different control techniques. Requiring students in online courses to complete assessments in a proctored classroom setting assures that the same level of integrity achieved in traditional classes is also achieved in online courses. However, such a policy diminishes many of the beneficial attributes of online classes. For example, students that must travel long

distances from home to campus and/or work full time would lose much of the benefit of an online course, especially if several in-class sessions are scheduled in a semester. One possible examination strategy that somewhat mitigates the negative logistical issues associated with multiple in-class exams would be to limit the number of exams given to perhaps one or two over the course of the semester. The authors provide the following recommendations that may be useful in enhancing the integrity of fully online courses, that is, courses where all of the course content as well as all of the different course assessments are delivered online (outside of the classroom). The pros and cons of each recommendation are also discussed.

One strategy that may be used to enhance the integrity of online courses is to require students to take exams and quizzes at an approved testing center which requires proof of identification and supervises students. Student identification could be scanned and maintained in electronic format and periodically analyzed to ensure that exams are not being completed by the wrong person. For example, assume several students paid their tutor to take their online exams for them. In order to trick the lab proctor, the tutor creates fake identification cards, each with his photograph but in the name of the different students. If the fake identification cards are scanned and reviewed, the scheme would be detected. Further, if students were informed of such policy, then it would likely serve as a deterrent to such cheating. Or biometric techniques such as retina/fingerprint scanning could be employed to validate the legitimacy of test takers. Online delivery of exams/quizzes in a supervised testing center also allows faculty to utilize technology to make testing and grading more efficient and secure. For example, a unique exam/quiz could be generated for each student by the computer from a large question pool so that students don't get the exact same set of questions as other students. If the number of questions in a question bank is limited then faculty could utilize features such as question shuffling within an exam and answer shuffling within individual questions so that even if students have the same set of questions, they will not be in the same order and the correct answer will not be the same letter or number. Additionally, limiting the time that a student has to complete a test or exam may reduce the likelihood of test takers "harvesting" exams questions and disseminating them to other students. Disadvantages of this strategy include financial costs associated with creating and staffing testing centers, privacy issues associated with the use of biometrics, and the limited number of practicable assessments that may be used.

Other techniques that may be used to possible enhance security/validity of online assessments include the following items.

- Use software to restrict the IP address of the computer a student may take the exam or test from so that they may only take it from certain computers. Load these computers with software to control what may be opened on the screen to ensure that students can only open the web site you want them to open. Advantage: Inexpensive. Disadvantage: Control may be circumvented fairly easily using another computer.
- Reduce the percentage of points associated with work completed in un-monitored environments as a part of the whole grade for the course. Advantage: Inexpensive. Disadvantage: May not be practicable in many courses.

- Limit or eliminate the use of traditional testing techniques like chapter quizzes and examinations and use instead other assessment techniques like projects and papers, or even oral exams (via skype, for example). Advantage: Just as secure as similar assessments that are used in traditional class setting. Disadvantage: Increased time for development and grading of assessments. May not be practicable in many courses.
- Where possible, individualize assignments so that each student must submit a customized response. For example, require each student to use a different company as the basis for their submission. Advantage: Inexpensive. Disadvantage: Increased time for development and grading of assessments.

Conclusion

While many students surveyed in this study appear to believe that online courses are a credible alternative to traditional courses, a rather significant perception of cheating is evident. Still, because this study did not extensively address cheating in traditional courses, it is unclear if respondents believe that cheating in online courses is significantly worse than traditional courses. The perception of credibility may be enhanced by requiring students in online courses to complete assessments in a proctored classroom or lab setting. However, the financial costs and related logistical issues associated with such a policy diminish the benefits of online courses. As online courses and learning assessment techniques continue to evolve additional research could be directed at developing assessments that are legitimate measures of student learning whether used in traditional or online courses.

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Tables

Table1: Descriptive Statistics in Percentages for Respondents (n = 184)

Gender

Male	52%
Female	48

Classification

Sophomore	21
Junior	28
Senior	51

Overall GPA

Less than 2.0	2
2.0 - 2.49	6
2.5 - 2.99	27
3.0 - 3.49	31
3.5 - 4.0	34

Age

18 - 20	23
21 - 24	51
25 - 29	15
30 - 39	6
40 or older	6

Employment

None	35
Part-time	36
Full-time	29
Online courses completed	
None	4
1 - 3	37
4 - 6	45
7 or more	15

Table 2: Percentage of Respondents Observing or Having Knowledge of Cheating Occurring and Type of Cheating.

Students observing or having knowledge of cheating n = 149 (81%)

Type of student cheating identified:

Received help with online exam.	50%
Received help with online quiz.	62
Received help with online homework.	68
Had another person complete online exam.	15
Had another person complete online quiz.	17
Had another person complete online homework.	21
Used prohibited materials to complete online exam.	42
Used prohibited materials to complete online quiz.	56
Used material from web to complete online exam.	41
Used material from web to complete online quiz.	53

Table 3: Respondents Ranking of Cheating by Discipline (Average Rank)

(1 = greatest amount of cheating; 7 = least amount of cheating))

Business Information Systems	2.7
Accounting	3.6
Economics	3.6
Finance	4.1
Marketing	4.5
Management	4.6
General Business	4.8

Table 4: Respondents Ranking of Cheating by Discipline (Percentage of “1” votes received)

(1 = greatest amount of cheating)

Business Information Systems	34%
Accounting	23
Economics	13
General Business	11
Finance	9
Management	7
Marketing	3

Table 5: Respondents’ Opinions Regarding Effectiveness of Different Techniques to Prevent Online Cheating.

Timed exam (student has limited time to complete).

Effective	60%
Not effective	18
No opinion	22
Web cam (faculty can watch student completing exam).	
Effective	49
Not effective	26
No opinion	25
Random question generation (every exam different).	
Effective	66
Not effective	14
No opinion	20
Delivery of online exam to all students at same date/time.	
Effective	49
Not effective	31
No opinion	20
Must take paper exam in proctored classroom.	
Effective	75
Not effective	8
No opinion	17
Must take online exam in proctored lab.	
Effective	68
Not effective	10

No opinion	22
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Table 6: Respondents Opinions Regarding Statements Concerning Online Cheating.

There is more cheating in online courses compared with traditional courses.

Agree	50%
Disagree	12
No opinion	38

Online courses are less credible than traditional courses.

Agree	34
Disagree	43
No opinion	23

Because of cheating, students learn less in online courses.

Agree	36
Disagree	33
No opinion	31

There is greater opportunity to cheat in online courses.

Agree	64
Disagree	13
No opinion	23

Most cheating in online courses is planned in advance.

Agree	32
Disagree	23
No opinion	45

Adventures in Teaching Sports Marketing

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Abstract

Although it is a popular major and a fast growing industry, many business schools fail to teach a course in sports marketing. This is one professors' attempt to introduce a Sports Marketing course in order to attract new majors, support the School of Business bid for a Sports Management major, and the very rocky road this journey took.

Introduction

Many business schools are not interested in teaching sports marketing. Yet sports marketing is a popular course and a fast growing industry with great job potential for graduates. A sports marketing course, especially as a part of a sports management degree, can benefit both the business majors and the school itself.

Sports related marketing is an industry which generates \$480 - \$620 billion dollars annually. This includes a variety of sports marketing alternatives. The sports marketing industry includes the marketing of sports which includes marketing teams, athletes, athletic equipment and sporting events such as the Superbowl, as well as the shirts, mugs, bobbleheads and other paraphernalia dear to the heart of the sports fan. The industry also includes marketing through sports whereby industries such as snack foods, beverages, automobiles, clothing, cameras, etc. use a sports theme to market their non-sports products. The sports marketing industry has many facets including endorsements, sponsorships, licensing, relationship marketing (fan-based), positioning of teams and athletes, venue-naming and of course – advertising.

The sports marketing industry is twice the size of the U.S auto industry and 7 times the size of the movie industry. It is the 6th largest industry in the U.S. Sports marketing is an excellent job market which expects at least average, but possibly higher-than-average, growth over the coming decades.

A course in sports marketing can be very beneficial to a School of Business. A sports marketing course is a very attractive major to athletes who major in business as well as to other business majors. It has the power to attract athletes and other students who otherwise would not be interested in a business major. It is a course which is perceived as fun and engaging by students. The appeal of the course is enhanced by the job potential in the field for graduates.

The Thrill of Victory? Or the Agony of Defeat?

The plan was to design a course in sports marketing which would attract athletes and other non-business majors. The course is to be designated as MK 300, Sports Marketing in a

program where Principles of Marketing is MK 301. There were no pre-requisites and the course would cover a wide variety of sports, both traditional and extreme, college and professional, spectator and participation sports, etc. The course was primarily designed for non-business majors but would be available as an elective for business majors. The course would be required as part of our Sports Management Degree should it be approved. However all did not go as planned, and the process quickly became a comedy of errors.

Adventure #1: Attract Non-business Majors

The Attempt: The hope was to attract athletes and other non-business majors. A flyer was developed and sent to all athletic departments. Special efforts were made to gain the support of the advisors in the athletic department and many agreed to co-operate.

No Goal: The registrar put the class on the schedule as a ‘closed’ class and didn’t open it for registration until the week before classes began. Numerous calls regarding the course were received from students but by the time it was available, most students had enrolled in other courses. The final enrollment consisted of approximately 25 business majors, many of them student athletes, who either registered late or who made schedule changes in order to take the course. In the end the course just cannibalized other business courses – and added a new prep for the professor.

Adventure # 2: Find a Textbook

The Attempt: Although there have been some excellent academic texts over the years, they seem to have disappeared from the market. While all publishers have a book they listed as a sports marketing text, most were written by practitioners and were unsuitable for use as a text. Only two publishers had a solid academic text.

Goal: Of the two texts, Sports Marketing, 2nd Ed., by Dr. Sam Fullerton, Mc-GrawHill-Irwin was chosen. The Fullerton text was most comprehensive and the only one which differentiated between marketing through sports and the marketing of sports. It also had the best coverage of sponsorships, endorsements, venues and other concepts.

Adventure #3: Set up the Class Online

The Attempt: The syllabus was designed to incorporate chapter exams as well class discussion, online discussion boards, a Sports Report assignment and class attendance. The course was to be taught over Blackboard via Elluminate Live! using publisher provided power point presentations and other materials.

No Goal: When the Blackboard cartridge was requested the publisher stated that one was not available. Why not? The text was out of print! The professor was not informed of this by the publisher when an examination copy was requested nor when the text was adopted.

No Blackboard cartridge meant that all PowerPoint's and test banks must be downloaded from publishers web site and then uploaded into Blackboard – chapter by chapter (15 chapters.) However this method was not effective for the test bank, and the test bank would not upload.

This required that the syllabus be revised and alternatives to tests devised. There were additional Discussion Boards added, more class exercises were used and graded for participation, and the percentage of the grade dependent on attendance was increased. The Sports Report was retained as assigned as the students had the necessary information in the text.

Adventure #4: Make it Work Anyway

The Attempt: Make Greater Use of Online Resources

Score!: The class was taught during the Spring term and the Superbowl provided a wealth of teaching materials. Almost every concept in the text was demonstrated in some aspect of the Superbowl whether it was the teams pre-bowl charity events or the variety of sponsorships, licensing and other marketing actions. And of course - there were the ads. The Superbowl ads provided a very rich backdrop to discuss everything from team and athlete positioning to long term marketing strategy. In addition sports teams, athletes, sporting goods producers, and sponsors all maintain a strong online presence which was used to demonstrate sports marketing principles and support the text material.

Adventure #5: Getting Program Approval

The Attempt: The course was designed in such a manner that it could be adapted as part of a Sports Management major which the School of Business had been requesting for some time.

No Goal: At this time it appears the Sports Marketing Degree will be offered through the athletic department where all the sports business courses will be taught by two professors with strong athletic backgrounds.

Conclusions and Recommendations

Although the original objectives in creating the course were not met, the process still should be counted as a victory. Sports were a very rich milieu for teaching marketing. Students seemed to grasp the concepts and be able to correctly identify or explain them in a wide variety of marketing situations. The enjoyable nature of the course increased student enthusiasm and students eagerly searched for examples of concept use in sports advertisements, web pages, and marketing campaigns. The Sports Report assignment required them to explain the marketing strategy and positioning of either a sports team or an athlete, and almost 90% of the class were able to clearly describe the overall marketing strategy for their chosen topic. Several students described the course as one of the best learning experience in their programs, and many more characterized it as the most enjoyable course they had ever taken.

Regardless of the objectives one may have in developing a course in Sports Marketing, it is an intrinsically worthwhile endeavor. The course was very effective in creating both student engagement and student learning, and was a very popular and attractive course to the students. The School of Business does plan to offer course again, but some decisions must be made. The plan is to review the new edition (available Summer, 2012, of the text which was not originally chosen, to determine if it is suitable for the professor's purposes. If not, then the course will be developed from ground zero and will not depend on a text nor test bank. Instead the course will depend on instructor created materials and will make extensive use of the abundant materials available on the internet.

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SENSITIVITY OF STOCK MARKET RETURN, OIL PRICES, AND EXCHANGE RATES TO TED SPREAD

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Abstract

From mid-2007, the global financial system faced what has come to be termed as ‘implausible’ and ‘worst’ financial crisis since the Great Depression. During the same time, financial asset valuation witnessed unusually high activity in their risk spread and volatility. Another interesting phenomenon observed has been widening spread between the U.S. T-bill rate and the LIBOR rate; also termed as the TED spread, a widely accepted proxy of perceived risk or risk premium demanded for counterparty risk. In this paper we analyze whether the TED spread (Treasury-Eurodollar spread) has an impact on stock market returns, exchange rates, and oil prices. Results from our study indicates that the TED spread has a positive and significant impact on trade weighted U.S. dollar index, indicating that the U.S. dollar with respect to other international currencies increase in value with an increase in counterparty risk. We did not find evidence of a significant impact of TED spread on DJIA or the spot OIL price.

Keywords: *TED Spread, Stock market returns, Oil prices, exchange rates*

Introduction

The sub-prime mortgage led financial crisis, had devastating impact on global economy. This financial crisis which began in the U.S. in 2007 soon spilled over into a global economic downturn creating significant impact on global financial structure. Over this time period, global financial instruments witnessed considerable volatility in their valuation and an increase in counterparty risk which resulted in uncertainty and a higher cost of credit among businesses, households, and financial institutions. It was soon apparent that any ability to predict economic events in such uncertain financial environment will serve as an invaluable tool for market participants and policy makers. Economic and financial indicators are more than ever being followed by economists, analysts, policy makers and even individual investors in their portfolio allocation and valuation decisions. These indicators also serve as important benchmark to evaluate economic outlook, business cycles and market participant sentiments.

Researchers have long been involved in the search for a few key indicators which will predict valuation changes in key financial assets. To better understand the underlying linkages between economic indicators and financial activity, researchers have analyzed monetary and financial variables to predict economic downturns (Palash and Radecki, 1985); term structure of interest

rates and economic activity (Harvey, 1988; Estrella and Gikas, 1990; Estrella and Hardouvelis, 1991; Benjimin and Kuttner, 1993; Bernanke and Blinder, 1992; Hu, 1993);

interest rates and macro outcomes (Estrella, 1997); financial variables and recession (Estrella and Mishkin, 1995 and 1998; Stock and Watson, 1989; Watson, 1991; Reinhart and Reinhart, 1996). There have also been studies conducted to analyze relation between monetary and credit aggregates, and economic activity (for e.g. see, Hostland, Poloz, and Storer, 1988; Bernanke and Blinder 1988; Kashyup and Stein 1994 and Hubbard 1998).

In this paper, we examine the usefulness of the TED spread (the spread between LIBOR and Treasury bill), an alternate risk measurement indicator on a number of important financial indicators. The London Interbank Offered Rate (LIBOR) is the key interest rate at which banks borrow unsecured funds from other banks in the London wholesale money market (Sengupta and Tam, 2008). Unlike the FED fund rate, which is a monetary tool of the Federal Reserve, and targeted by the same authority, the LIBOR, are survey based money market interest rates published by the British Bankers' Association (BBA) which captures the rates paid on unsecured interbank deposits at large, internationally active banks (Michaud and Upper, 2008). Therefore in a competitive and frictionless interbank lending environment, the TED spread (spread between LIBOR and Treasury bill) represents as counterparty or the perceived lending risk. This is because LIBOR can be expressed as cumulative and competitively determined borrowing cost (which reflect credit default risk) while Treasury bill are risk free. An increase in TED spread will therefore signal that lenders perceive an increase in counterparty risk consequently accepting a higher rate of lending rate. Similarly, when the counterparty risk is perceived to be decreasing, the observed TED spread should also decrease. An understanding of relation among counterparty risk and leading financial indicators is important for investors and policy makers.

We in our study contribute in several ways to literature: first, we extend the literature on linkages between economic indicator and financial activities by using TED spread, an indicator of risk assessment growing in importance. Though the TED spread, a widely adopted credit risk measure (Taylor and Williams 2009, 2009) is a critical part of the financial markets infrastructure, the economic impact of TED spread on other key financial indicators has largely been ignored. Since its commencement in 1986, the LIBOR has gradually developed in prominence and is now among the most widely used benchmark rates in international financial contracting. According to BBA, an estimated US\$10 trillion of loans and US\$350 trillion of swaps are indexed by the LIBOR (Snider and Youle, 2010). Therefore, it is important to study the effect of the TED spread on other financial indicators. An understanding of these linkages will be important for investors in determining optimal portfolio weights and portfolio construction. How counterparty risk and illiquidity can be influential factor affecting asset performance will also be important to policy makers in determining effective monetary policy. Another contribution of our study is the focus it presents on understanding near term relation between the variables of interest. A major criticism of conducting research using economic indicator data is that the indicator announcements reported periodically (which are normally

reported on a weekly or a monthly basis) may suffer from a problem of endogeneity. By focusing on a near term relationship in this paper, we minimize this affect of endogeneity.

Motivation for our paper principally arises from the global financial crisis of 2007-08 and the critical role of liquidity and counterparty risk in that episode and therefore purpose of this study is to assess the impact of monthly TED spread (TED) on changes in Dow Jones industrial average (DJIA), spot oil price (OIL), and the U.S. exchange rate (TWUSEX). We estimate vector auto regression (VAR) model for these financial indicators over period. Results from our study indicate that,

The remainder of this paper is organized as follows: Section two presents the data and descriptive statistics while section three describes the econometric methodology. Section four presents the empirical findings and section five provides concluding remarks.

Data and Descriptive Statistics

We obtain all data in monthly intervals from January 1986 to February 2012. The choice of sample length and frequency of the data is based on availability and to ensure adequate variations in the business cycle. To measure TED spread, we employ the spread between the 3 month London Interbank offer rate (LIBOR), based on the U.S. dollar and 3 month Treasury Bill rate (3MTB). In order to analyze the effect of TED spread we employ the data for a broad range of business and finance related indicators. For financial indicators we have Dow Jones industrial average (DJIA), spot oil price index (OIL), and the trade weighted U.S. exchange rate (TWUSEX). These data are obtained from *Federal Reserve Bank of St. Louis*.

[Figure 1: about here]

Table 1 reports the descriptive statistics on the period to period change on data of the above- mentioned variables. From the table it can be observed that mean for TED, LIBOR, 3MTB, and OIL are negative while for DJIA and TWUSEX are positive. Variables of interest are known to been impacted —and continued to be impacted— with several business cycle downturns, for e.g. the dot-com bubble crash (2000-2001) and the more recent sub-prime mortgage lead financial crisis (2008-2009). Interesting is that over the period of study, DJIA and TWUSEX has overall recorded, on average, a positive period-to-period change.

[Table 1: about here]

The maximum for all variables are positive while the minimums are negative. There is significant presence of asymmetry in data which can be observed from skewness (for e.g. LIBOR, 3MTB, DJIA, TWUSEX, and OIL) report a negative skewness or longer left tail). The positive skewness of TED spread indicates presence of premium in LIBOR rate over the 3MTB rate (since the spread is the difference between the two) justifying the unsecured counterparty risk. For e.g., TED spread had significantly increased during the recent financial crisis. On the

other hand positive skewness is observed for STLFSI, CONLN, REALLN, and MONBSE (see Figure 1). A large Kurtosis figure (>3) is observed, indicating a relatively peaked distribution. Such observation for Skewness and Kurtosis characteristics further motivate the use of time-series methodology for any result inference. Table 1 also show that the data does not support the supposition that variable of interest have a normal distribution which is rejected based on the Jarque-Bera test results (all variables except for OIL reporting a p-value = 0.0000).

Econometric Methodology

Since these financial indicators and TED spread may act as a system (Brown and Cliff, 2004 & 2005; Lee et al., 2002), we choose the VAR model developed by Sims (1980) as an appropriate econometric approach to investigate the postulated relationships.

We express the VAR model as:

$$Z(t) = C + \sum_{s=1}^m A(s)Z(t-s) + \varepsilon(t) \quad (1)$$

where, $Z(t)$ is a column vector of variables under consideration, C is the deterministic component comprised of a constant, $A(s)$ is a matrix of coefficients, m is the lag length and $\varepsilon(t)$ is a vector of random error terms.

The VAR specification allows the researchers to do policy simulations and integrate Monte Carlo methods to obtain confidence bands around the point estimates (Doan, 1988; Hamilton, 1994). The likely response of one variable to a one time unitary shock in another variable can be captured by impulse response functions. As such they represent the behavior of the series in response to pure shocks while keeping the effect of other variables constant. Since, impulse responses are highly non-linear functions of the estimated parameters, confidence bands are constructed around the mean response. Responses are considered statistically significant at the 95% confidence level when the upper and lower bands carry the same sign.

It is well known theoretically that traditional orthogonalized forecast error variance decomposition results based on the widely used Choleski factorization of VAR innovations may be sensitive to variable ordering (Pesaran and Shin, 1996; Koop, Pesaran and Potter, 1996; Pesaran and Shin, 1998). To mitigate such potential problems of misspecifications, we employ the recently developed *generalized impulses* technique as described by Pesaran and Shin (1998) in which an orthogonal set of innovations which does not depend on the VAR ordering.

Estimation Results

Before proceeding with the main results, we first check the time series properties of each variable by performing unit root tests using Augmented Dickey Fuller (ADF) test (Dickey and Fuller, 1979, 1981). Based on the consistent and asymptotically efficient *AIC* and *SIC* criteria (Diebold, 2003) and considering the loss in degrees of freedom, the appropriate number of lags is determined to be two. In the case of the ADF test, the null hypothesis of non-stationarity is rejected. The inclusion of drift/trend terms in the ADF test equations does not change these results (Dolado, Jenkinson, and Sosvilla-Rivero, 1990). The Unit root test results are reported in table 2.

[Table 2: about here]

We construct the generalized impulse responses from the VAR model to trace the response of one variable to a one-standard-deviation shock to another variable in the system. We employ Monte Carlo methods to construct confidence bands around the mean response (Doan and Litterman, 1986). When the upper and lower bounds carry the same sign, the responses become statistically significant at the 95% confidence level¹.

Now we focus our attention towards analyzing the impact of TED spread on three financial indicators of interest in our study (i.e. DJIA, TWUSEX, and OIL), we estimate VAR models with two lags each.

[Figure 2: about here]

The impact of TED spread is observed significant for TWUSEX. The response for TWUSEX is positive and significant for 1 time periods and then becomes negative and not significant from period 2 onwards. These results are an evidence of trade weighted U.S. dollar exchange rate index increasing as TED spread increases. It is well known that investors move to U.S. dollar as counterparty risk increases in international markets. The U.S. dollar exchange rate also is noted to increase, for e.g. during the recent financial crisis, due its global shortage. International firms need U.S. dollars to fund their investments and conduct trade in U.S. dollar (Coffey et al., 2009). Dollar shortage amplified as due to fear the U.S. money market funds almost immediately ceased the purchase of bank-issued commercial papers following the bankruptcy of Lehman Brothers

¹Sims (1980) suggests that autoregressive systems like these are difficult to describe succinctly. Especially, it is difficult to make sense of them by examining the coefficients in the regression equations themselves. Likewise, Sims (1980) and Enders (2003) show that the *t*-tests on individual coefficients are not very reliable guides and therefore do not uncover the important interrelationships among the variables. Sims (1980) recommends focusing on the system's response to typical random shocks i.e., IRFs. Given these theories, we analyze the relevant IRFs and do not place much emphasis on the estimated coefficients of the VAR models.

(Baba et al., 2009). The reduced availability of dollars resulted in higher dollar exchange rate. No significant impact of TED is observed for DJIA and OIL.

Conclusions

The financial crisis of 2007-08 has yet again got academicians and practitioners to focus on idea of understanding the impact of counterparty risk on other financial indicators. Understanding of such linkages are more than ever being followed by economists, analysts, policy makers and even individual investors for policy formulation, portfolio allocation and valuation decisions. These indicators also serve as important benchmark to evaluate economic outlook, business cycles and market participant sentiments. In this paper, we examine the usefulness of the TED spread (the spread between LIBOR and Treasury bill), an alternate risk measurement indicator on a number of important financial indicators. Results from our study indicates that the TED spread has a positive and significant impact on trade weighted U.S. dollar index, indicating that the U.S. dollar with respect to other international currencies increase in value when the TED spread, or the counterparty risk increases. We could not find evidence of a significant impact of TED spread on DJIA or the spot OIL price. These findings suggest that the TED spread can be a useful tool in forecasting the U.S. dollar exchange rate however has a limited power in forecasting the direction of stock market or the spot OIL price.

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Tables

Table 1: Descriptive Statistics

Table 1 reports the descriptive statistics for variables of interest. In the table are, 3M London Interbank offer rate for U.S. dollar- 3M U.S. Treasury Bill rate spread (TED), 3M London Interbank offer rate for U.S. dollar (LIBOR), 3M U.S. Treasury Bill rate (3MTB), Dow Jones industrial average (DJIA), Spot oil price (OIL), and Trade weighted U.S. dollar index (TWUSEX). The data range is between January 1986 and February 2012. Source of data is the *Federal Reserve Bank of St. Louis*.

	TED	LIBOR	3MTB	DJIA	TWUSEX	OIL
Mean	-0.0025	-0.0246	-0.0220	37.2368	0.2590	-0.1559
Median	-0.0017	-0.0023	0.0000	56.6950	0.3390	-0.0537
Maximum	1.3969	0.9369	0.4600	855.9700	13.3600	5.0529
Minimum	-1.2995	-1.7795	-0.8600	-1937.3700	-27.2500	-4.5232
Std. Dev.	0.2123	0.2629	0.2066	308.7838	4.0318	1.5616
Skewness	0.5447	-1.2597	-0.9126	-1.4890	-1.5631	-0.1014
Kurtosis	16.7907	10.7806	4.7534	9.5534	13.5001	3.1827
Jarque-Bera	2503.7610	875.0829	83.8058	677.9258	1570.3340	0.9749
Probability	0.0000	0.0000	0.0000	0.0000	0.0000	0.6142

Table 2: Unit root results

Table 2 reports the Unit root test for variable of interest. In the table are, 3M London Interbank offer rate for U.S. dollar- 3M U.S. Treasury Bill rate spread (TED), 3M London Interbank offer rate for U.S. dollar (LIBOR), 3M U.S. Treasury Bill rate (3MTB), Dow Jones industrial average (DJIA), Spot oil price (OIL), and Trade weighted U.S. dollar index (TWUSEX). The data range is between January 1986 and February 2012. Source of data is the *Federal Reserve Bank of St. Louis*.

	Augmented Dickey-Fuller	Phillips-Perron
	Intercept	Intercept
TED	-11.37393	-38.23488
DJIA	-6.590826	-5.929935
OIL	-6.646985	-5.6939
TWUSEX	-3.648822	-3.68155
1% level	-3.451351	-3.451078
5% level	-2.870682	-2.870561
10% level	-2.571711	-2.571647

Figure 1: TED spread

Figure 1 shows the TED spread (spread between the 3 month London Interbank offer rate for U.S. dollar and the 3 month U.S. Treasury bill rate). The data range is between January 1986 and February 2012. Source of data is the *Federal Reserve Bank of St. Louis*.

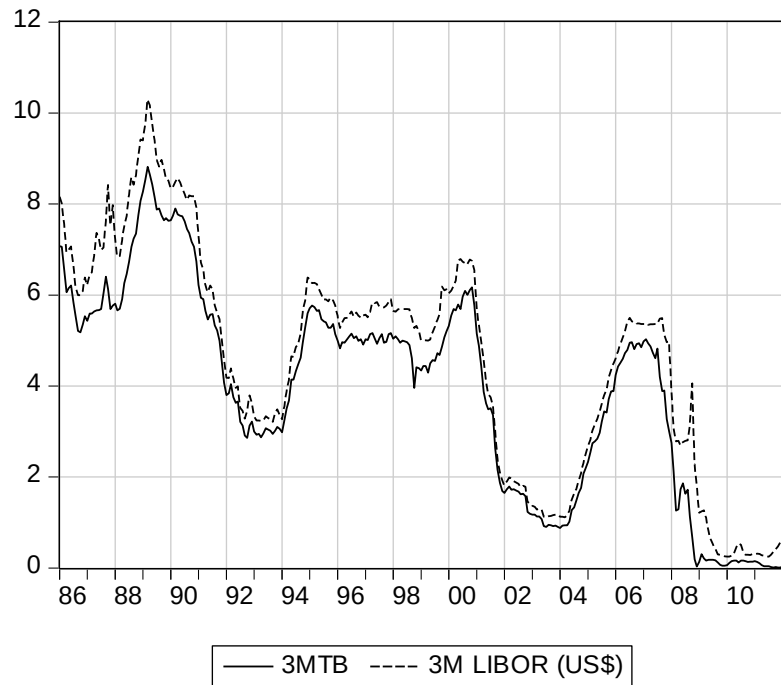
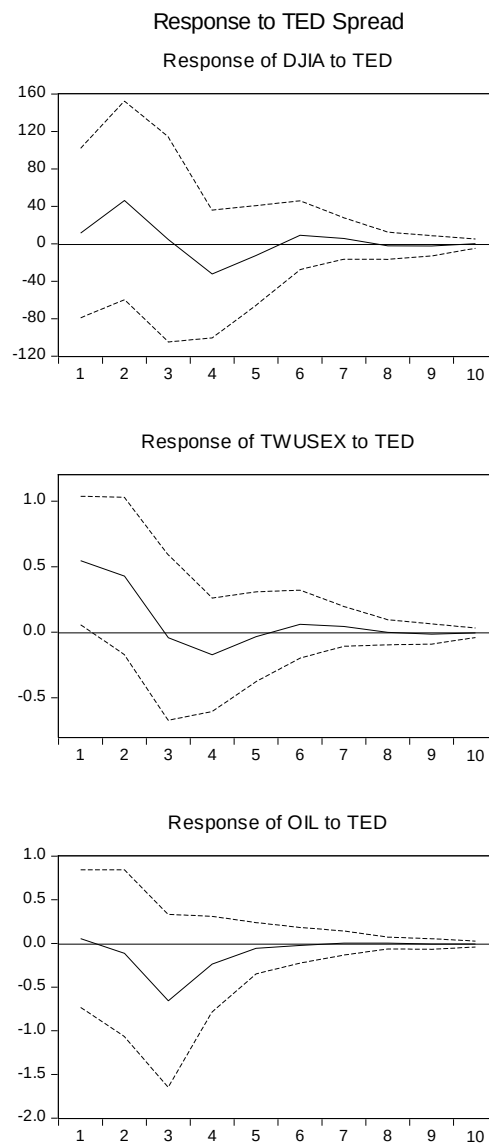


Figure 2: Response to TED spread for variables of interest*

Figure 2 shows the responses to TED spread for variables of interest. In the figure are Dow Jones industrial average (DJIA), spot oil price index (OILPRICE), and the trade weighted U.S. exchange rate (TWUSEX). The data range is between January 1986 and February 2012. Source of data is the *Federal Reserve Bank of St. Louis*.



*The dashed lines on each graph represent the upper and lower 95% confidence bands. When the upper and lower bounds carry the same sign the response becomes statistically significant.

Regionalism With Consumption Externalities

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Abstract:

We investigate the effect of regionalism on optimum tax in the presence of consumption externalities. We use a Cournot – oligopoly model to derive optimum environmental tax before and after a regional free trade agreement is made. We also analyze the effects of such agreement on tax imposed by the welfare maximizing governments of the rest of the world.

Keywords: Regionalism; Optimum tariff; Environmental tax; Welfare; Trans-boundary pollution.

JEL Classification Codes: F10; F13; F15

Regionalism with Consumption Externalities

1. Introduction:

The growing literature on trade and environment has mainly focused on two issues: whether trade liberalization affects environment negatively and whether free trade leads to improvement in national welfare in the presence of negative externalities caused by pollution (Bakshi and Ray Choudhury (2008), Barrett (1994), Burguet and Sempere (2003), Fujiwara (2010), Hamilton and Raquet (2004), Kayalica and Kayalica(2005), Kennedy (1994), McAusland (2008), Tanguay (2001), Ulph (1996), Walz and Wellisch (1997)). In the literature on strategic environmental policy Barrett (1994), Kennedy (1994) and Ulph (1996) have shown that bilateral tariff reduction will lower environmental tax. This is known as “ecological dumping”. In the absence of tariff environmental tax may be used as a rent extracting instrument. In other words, by lowering tax environmental policy is being used as a substitute for trade policy to give domestic firms a competitive advantage. Using a model with trans-boundary pollution while Bakshi and Ray Chaudhury (2008) have shown that free trade may raise environmental tax if pollution is sufficiently harmful and increase welfare if initial tariff is sufficiently large. For small tariff welfare may decrease. Tanguay (2001) has concluded that both tax and welfare under free trade may be lower. In a model with local pollution, while Walz and Wellisch (1997) have shown that free trade may be welfare improving, Burguet and Sempere (2003) have shown that free trade may raise both welfare and tax. The effect on tax depends on two opposing effects. A bilateral reduction in tariff increases output and lowers price. But it also damages environment. Thus it increases incentive for higher environmental protection. On the other hand, lower tariff revenue makes import less attractive and export more attractive and thus reduces incentive for environmental protection. The effect on tax depends on these two opposite effects. As Burguet and Sempere (2003) have shown, either of these effects can dominate. Fujiwara (2010) has used a model with trans-boundary pollution to show that free trade will unambiguously raise environmental tax and also raise welfare if pollution damage is sufficiently high. As a corollary, Fujiwara (2010) has also shown that free trade will lower welfare under local pollution.

The purpose of this paper is to extend the models suggested by Fujiwara (2010) and Kayalica and Kayalica (2005) by introducing a third country and analyze the effects of a regional free trade agreement (FTA) on environmental tax in the presence of consumption externalities. In the process, we accomplish two important goals. First, it allows us to combine the literature on preferential trade agreement (PTA) (see Bagwell and Staiger (1997), Bond et al (2004), Freund (2000), Krishna (1998), Panagariya (2000)) with that of strategic environmental policy. This

will enable us to investigate whether an FTA will be harmful to FTA members. This is an important question in view of recent spurt in regional free trade agreement such as NAFTA and its possible effects on environment. Finally, it will be possible to investigate effects of a FTA on rest of the world's environment.

The paper is organized as follows. In section 2, we present the model. Section 3 provides the main results. In Section 4, we provide some concluding remarks.

2. Model:

We consider a reciprocal dumping model of trade (see Brander-Krugman (1983) and Brander-Spencer (1985)) with three firms located in three countries, Home (1), Foreign (2) and Rest of the World (3). Each firm sells in all three countries. Brander-Krugman (1983) has shown how rivalry among oligopolistic firms may lead to 'dumping' where each firm perceives each country as a separate market and makes separate quantity decisions for each. This is an extension of 'segmented market' argument made by Helpman (1982). In each of the countries, demand for the good is given by an inverse demand function,

$$P_j = A_j - \sum_i q_j^i, \quad i, j = 1, 2, 3, \text{ where } q_j^i \text{ represents output sold by firm } i \text{ in } j\text{th market.}$$

In each country government maximizes welfare by choosing environmental tax, e^i , given an arbitrarily chosen import tariff, t^i with $i = 1, 2, 3$. Elsewhere we have considered model where government chose tariff strategically (Dasgupta and Lee (2012)). Following Fujiwara (2010) we assume that e^i represents tax on consumption that generates pollution. We assume that d_i , for $i = 1, 2, 3$, represents damage caused by pollution emitted by each unit of output. We simplify the analysis by assuming constant and identical marginal costs of production and marginal damages in all three countries given as follows:

$$c_i = c \text{ and } d_i = d \text{ for } i = 1, 2, 3.$$

We also assume¹ that $(A_j - c - d) > 0$ for $j = 1, 2, 3$. Following Fujiwara (2010) and Kayalica and Kayalica (2005), we consider a two-stage game. In the first stage Home, Foreign and Rest of the world governments choose e^i for $i = 1, 2, 3$. In the second stage, after observing the choices of the first stage, firms choose their output. It needs to be pointed out that while Burguet and Sempere (2003), Fujiwara (2010), Kayalica and Kayalica (2005), Hamilton and Requate (2004) and Tanguay (2001) use a two-country model with Hamilton and Requate (2004) introducing an intermediate good, our paper extends their model to include a third country but does not include

intermediate good. Finally , we incorporate trans-boundary pollution following Tanguay (2001) and Ray Chowdhury and Baksi (2008), Fujiwara (2010) and Kayalica and Kayalica (2005).

3. Main Results:

(3.1) Optimal Tax.

We solve the second stage first. Firm j chooses q_i^j for $i, j = 1, 2, 3$ by maximizing profit, π^j , given t^i and e^j where $\pi^j = \sum_i [A_i - Q_i - c_i] q_i^j - \sum_{i \neq j} t^i q_i^j - \sum_i e^i q_i^j$ for $i, j = 1, 2, 3$. Note that $Q_i = \sum_j q_i^j$, $Q^j = \sum_i q_i^j$, e^i and t^i represent consumption in i th nation, production in j th nation, consumption tax in i th nation and tariff imposed by i th nation respectively. Given t^i and e^j , $i, j = 1, 2, 3$, first order conditions (F.O.Cs) yield the following solutions for q_i^j :

$$\begin{aligned} q_i^j &= \frac{1}{4} \left\{ A_i - c - 2t^i - 3e^j + \sum_{i \neq j} e^j \right\} \\ q_i^i &= \frac{1}{4} \left\{ A_i - c + 2t^i - 3e^i + \sum_{i \neq j} e^j \right\} \end{aligned} \quad (1)$$

Finally, note that $\pi^j = \sum_i (q_i^j)^2$ for $i, j = 1, 2, 3$.

Government, in the first stage, maximizes welfare, W_i , and chooses e^i where,

$$W_i = CS_i + \pi^i + TR_i + e^i Q_i - d Q_i - rd \sum_{j \neq i} Q_j \quad (2)$$

Note, for all $i, j = 1, 2, 3$, $CS_i = \frac{1}{2} (A_i - P_i) Q_i = \frac{1}{2} Q_i^2$, $TR_i = t^i \sum_{i \neq j} q_i^j$, $e^i Q_i$ and $d Q_i$ represent consumers' surplus, tariff revenue, tax revenue and environmental damage respectively. Trans-boundary pollution is introduced through the parameter r where r represents fraction of total costs of foreign pollution that enters national welfare. Also, following Brugué and Sempere (2003) we assume that all three countries have identical demand. That is, $A_j = A$ for all $j = 1, 2, 3$.

Using (1), FOCs yield the following solutions for optimum tax and output, for all $i, j = 1, 2, 3$; $i \neq j$

$$e^i = \frac{A - c + 12d - 14t^i}{13}$$

$$\begin{aligned}
q_i^i &= \frac{1}{52}(12A + 40t^i) \\
q_j^i &= \frac{1}{52}(12A - 12t^j) \\
Q^i &= Q_i = \frac{1}{52}(36A + 16t^i)
\end{aligned} \tag{3}$$

From (3) it is clear that higher (resp. lower) tariff raises (resp. lowers) consumption of domestically produced good and lowers (resp. raises) import. Also we observe that trade liberalization (i.e, lower tariff) raises emission tax. This is in sharp contrast to the result obtained by Barrett (1994), Kennedy (1994) and others. However, this is consistent with results obtained by Fujiwara (2010), McAusland (2008), Bakshi and Roychoudhury (2008) and Tanguay (2001). Using (2) and (3) welfare of a typical country can be derived and is as follows: For all $i, j = 1, 2, 3$ and $j \neq i$

$$\begin{aligned}
W_i &= \frac{1}{2} \left(\frac{9}{13}(A - c - d) + \frac{4}{13}t^i \right)^2 + \left(\frac{3}{13}(A - c - d) + \frac{3}{13}t^i \right)^2 + \sum_{j \neq i} \left(\frac{3}{13}(A - c - d) - \frac{3}{13}t^j \right)^2 \\
&+ t^i \left(\frac{6}{13}(A - c - d - t^i) \right) + \left(\frac{9}{13}(A - c - d) + \frac{4}{13}t^i \right) \left\{ \frac{1}{13}(A + 13d - 14t^i) \right\} - \\
&d \left(\frac{9}{13}(A - c - d) + \frac{4}{13}t^i \right) - rd \left\{ \frac{18}{13}(A - c - d) + \frac{4}{13} \sum_{j \neq i} t^j \right\}
\end{aligned} \tag{4}$$

Assuming global free trade where $t^i = 0$ for all $i = 1, 2, 3$, we get,

$$W_i^F = \frac{153}{338}(A - c - d)^2 - \frac{18}{13}(A - c - d)rd \tag{5}$$

It will be interesting to check the impact of autarky on welfare where government in country i imposes tariff, t_A^i , such that $q_j^i = 0$ for all $i, j = 1, 2, 3$ and $i \neq j$. Tariff and welfare under autarky are

$$\begin{aligned}
t_A^i &= (A - c - d) \\
W_i^A &= \frac{1}{2}(A - c - d)^2 - 2(A - c - d)rd
\end{aligned} \tag{6}$$

Comparing (5) and (6) we find that $W_i^F > W_i^A$ if $d > \frac{(A-c)}{1+13r}$ and $W_i^F < W_i^A$ if $d < \frac{(A-c)}{1+13r}$

It is clear that free trade may not always be welfare improving. In fact, free trade may lower welfare unless the parameter values are sufficiently high. The lower the trans-boundary pollution- coefficient, r , the higher is the likelihood that autarky welfare is higher than welfare under global free trade. Note that if $r = 0$, $W_i^A > W_i^F$

From (3), it is clear that higher (resp. lower) marginal damage will result in higher (resp. lower) environmental tax. Also, (3) shows that higher tariff (resp. lower tariff) raises (resp. lowers) domestic production and lowers (resp. raises) import.

(3.2) Effect of FTA Pollution tax:

In this section we analyze the impact of trade liberalization on tax where two of the three countries form an FTA among themselves. Suppose, without loss of generality, countries 1 and 2 form an FTA where they remove tariff on import from each other while maintaining tariff on import from country 3. We denote tariff imposed on imports from country 3 by countries 1 and 2 by t_F^1 and t_F^2 respectively. We assume $t_F^1 = t_F^2$. Also, t_F^3 represents tariff imposed on imports from countries 1 and 2 by country 3. We let, for $i = 1, 2, 3$, Q^{iF} , Q_{iF} , q_{iF}^j and e^{iF} represent production, consumption, output and tax respectively under FTA.

In the second stage firms maximize profit under FTA, π_F^i , given by, for $i, j = 1, 2, i \neq j$

$$\pi_F^i = \sum_j (A_j - Q_{jF} - c)q_i^j - (A_3 - Q_{3F} - c - t^3)q_{iF}^3 - e^{iF} Q^{iF} \text{ and}$$

$$\pi_F^3 = \sum_i (A_i - Q_{iF} - c - t^i)q_i^3 - (A_3 - Q_{3F} - c)q_{3F}^3 - e^{3F} Q^{3F}$$

FOCs yield the following solutions for $i, j = 1, 2$ and $i \neq j$

$$q_{jF}^i = \frac{1}{4}(A - c - e^j + t^j)$$

$$q_{3F}^i = \frac{1}{4}(A - c - e^3 - 2t^3)$$

$$q_{jF}^3 = \frac{1}{4}(A - c - e^3 - 3t^j)$$

$$q_{3F}^3 = \frac{1}{4}(A - c - e^3 + 2t^3) \quad (7)$$

For $i = 1, 2, 3$, letting CS_{iF} and TR_{iF} denote consumers' surplus and tariff revenue respectively under FTA, governments choose tax, e^{iF} , by maximizing W_{iF} , welfare under FTA where, for $j=1, 2, 3$,

$$W_{iF} = CS_{iF} + \pi_F^i + TR_{iF} + (e_F^i - d)Q_F^i - rd(\sum_{i \neq j} Q^j) \quad (8)$$

Optimal tax is given as follows. For $i, j = 1, 2$ and $i \neq j$,

$$e_F^i = \frac{A-c+12d-7t^i}{13} \quad (9)$$

$$e_F^3 = \frac{A-c+12d-14t^3}{13} \quad (10)$$

Comparing (3) with (9) and (10) shows that FTA between countries 1 and 2 raises emission tax in FTA member countries while leaving it unchanged in rest of the world. This is consistent with Fujiwara (2010) and McAusland (2008). The effect on tax depends on two sets of opposing effects. As tariff is lowered or removed, government has an incentive to lower tax to increase output to correct some of the inefficiency arising from imperfect competition (efficiency effect). Also, government has an incentive to set tax below efficient level since it has no incentive to factor in pollution outside its boundary (trans-boundary externality effect). On the other hand, in the absence of a tariff higher emission tax is needed to shift the profit earned by foreign firms into domestic firms (rent capture effect). Also, higher tax is needed to reduce pollution from increased consumption resulting from removal of tariff and higher import (pollution reducing effect). Clearly, rent capture effect and pollution reducing effect dominate efficiency effect and trans-boundary externality effect. Again comparing (10) with (3) yields $e_F^3 = e^3$. Elsewhere, we have shown that an FTA will lower tax on rest of the world if only local pollution is considered (Dasgupta and Lee (2010)). Also, this result is a departure from Dasgupta and Lee (2012) where FTA raises tax in rest of the world in the presence of trans-boundary pollution.

4. Conclusion:

In this paper we have extended the model suggested by Fujiwara (2010) and Kayalica and Kayalica(2005) by incorporating a third country (rest of the world) to show that an FTA between two of three countries will raise pollution tax in FTA member countries. Also for high value of damage and/or low value of tariff the FTA may be endorsed by the member countries since FTA improves welfare under those circumstances. In rest of the world, however, FTA leaves the pollution tax unchanged. In spirit, this is similar to tariff-complementarity effect (Bagwell and Staiger (1997)) where government chooses tariff strategically and FTA leaves tariff imposed by rest of the world unchanged. Finally, we show that impact on rest of the world's welfare depends on the value of tariff. In fact, for a sufficiently low tariff, rest of the world's welfare may decrease.

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SOBIE 2012 Service Learning in an Information Systems Course

Elder, Rutner & MacKinnon

Abstract: Service Learning in an Information Systems Course

Efforts to develop model curricula in Information Systems have placed heavy emphasis on “what” should be taught in various courses or learning modules, but little attention has been given to the pedagogical issue of how best to deliver the course content to both (1) maximize student learning of content while (2) simultaneously addressing larger societal and educational issues. The use of a Service Learning approach to the teaching of Information Systems has the potential to develop information systems professionals who possess the skill set necessary to succeed in the information systems field and who also understand the civic responsibility associated with being educated corporate and community citizens.

Survey after survey of corporate recruiters put work ethic, communications, information gathering, ethics, and people skills at the top of the list of skills they seek in prospective employees. Yet the same recruiters insist that those they hire have a sound technical base. Our task, then, is to provide our graduates with both the “soft” and technical skills necessary for both career success and success in their personal lives. The use of a Service Learning approach in Information Systems education has the potential to develop information systems professionals who possess the skill set necessary to succeed in the field and who also understand the civic responsibility associated with being educated corporate and community citizens.

This paper will discuss how we have implemented a service learning component in our information systems program in our System Analysis and Design co.

Overnight and Weekend Gold Returns

Laurence E. Blose, Grand Valley State University

Abstract

Using Bloomberg late afternoon gold prices for the period August 1992 through May 2011, the paper shows that returns from the end of day Friday to the end of day Monday are significantly less than returns during the rest of the week. Parsing out the weekend returns from Monday returns the paper shows that day returns on Monday are significantly lower than day returns during the rest of the week. The paper also compares overnight returns in gold to day returns in gold and finds that overnight returns are significantly negative while day returns are significantly positive. The difference between day and overnight returns are shown to be significantly different beyond the .001 level of significance.

Best Practices for On-line Course Delivery

Alice Batch, Arkansas Tech University

Nina Goza, Arkansas Tech University

Abstract

The new wave of on-line course delivery has hit traditional university campuses. The push to add on-line degrees has created new problems for administration and faculty for many universities wishing stay competitive. This study focuses on best practices used to deliver a business computer applications and accounting on-line course. The paper discusses the need for video capture and secure testing. Tegrity lecture capture was used for both lecture capture and secure testing. The study reviews student reaction to the methodology used. A pre- and post-measure of student attitudes about lecture capture was given. Correlational analyses for Tegrity usage and student grades were conducted to determine if a relationship exists and whether higher-order statistics are warranted.

Preventing Academic Dishonesty

Kevin Mason, Arkansas Tech University

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Nina Goza, Arkansas Tech University

Abstract

Studies are reviewed that show an increasing trend in academic dishonesty. This is a problem for our business students because studies show those who cheat in college also dishonest in their careers. Also several studies show higher rates of cheating among business students than reported with the average student. Who has responsibility for promoting academic integrity and preventing academic dishonesty (AD)? Experience has shown that students think faculty members are responsible, faculty think students and administrators are responsible and administrators think that students and faculty are responsible. The bottom line is that all three share responsibility. Faculty members are responsible for preventing, detecting, and reporting AD as well as communicating essential information with students concerning AD. Essential information would include specific instances of what would be considered cheating and the expected consequences of those actions. Students are responsible for acting with integrity, for knowing the university and classroom policies and they must be willing to accept the consequences of their actions. Administrators are responsible for creating and enforcing policies concerning AD. The methods of confronting and reporting AD are discussed. At least fifteen different AD prevention strategies are presented. This working paper communicates practical information that could be useful to new faculty or for those that are just realizing the need to take prevention seriously and gives recommendations for dealing with this growing problem.

Academic Honor Code and Student Cheating: A Comparison of In-Class and Online Student Attitudes

Genie Black, Arkansas TECH University

Abstract

Previous research has indicated that cheating among business students is very high compared to other academic disciplines. Business students in two online courses and one in-class course were asked to voluntarily participate in the use of an Academic Honor Code for one semester. The “Code” detailed specific cheating behaviors that students agreed *not* to engage in as well as behaviors they *would* participate in, such as reporting cheating when they observed it. Participants completed a survey at the end of the semester that tapped into their attitudes about the impact the “Code” had on these behaviors. Significant differences were found between the students in online versus in-class courses in two areas: students in online courses were more likely *not* to participate in the Academic Honor Code study, and reporting of cheating behaviors was higher in the in-class section of students. In addition, students who were U.S. citizens displayed lower levels of cheating behaviors than did non-U.S. students.

Student versus Faculty Perceptions of Factors that Impact Cheating in the Classroom

Genie Black, Arkansas TECH University

Abstract

In today's world where students are faced with the need to succeed, particularly in the business arena, academic pressure along with other factors may increase the likelihood that a student will choose to cheat in order to get ahead. The theory of specificity (Hartshorne and May, 1928) suggests that the choice to participate in behaviors that are either honest or dishonest is determined not so much by our internalized values, but rather are determined by situational specificity. Thus, there exist differences between one's stated beliefs and his observable behavior. In the classroom, human behavior is often influenced by contextual factors. While we would like to think that our values of moral vs. immoral and right vs. wrong determine our behavior, research has shown that numerous other factors come into play that can moderate our behaviors. In this study, students and faculty completed a survey that asked what types of factors impacted a student's likelihood to cheat in the classroom. Numerous differences were found in terms of factors cited by students versus those cited by faculty. Differences focused on three primary areas: curricular factors, teacher characteristics and classroom management techniques. These differences are discussed and recommendations for how to reduce student cheating are provided.

A Case of Fraud: Phoenix House

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Charles L. Martin Jr. DBA, CPA, Towson University

Abstract

This is an actual case that has been, as noted when reading the postscript, only partially resolved. Therefore the name and location of the facility as well as the names of the employees have been changed. The case has also been classroom tested in a graduate auditing class where the students found this case to be more relevant to their own situations rather than many of the cases involving large corporations. The case involves a HUD funded independent living facility for senior citizens. The facility is run by a handful of employees who report to a director who in turn reports to a Board of Directors. The voluntary Board doesn't get involved with the daily operations of the facility and for the most part does not exercise its oversight function. As a result, the director has a great deal of latitude with no supervision resulting in an atmosphere ripe for irregularities.

Would Sox Like Provisions for Municipal Governments Have Prevented the Jefferson County Bankruptcy?

Cynthia Sneed, Jacksonville State University
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Abstract

Investor losses in the private sector resulting from misleading financial statements and the personal use of corporate assets by management resulted in the passage of the Sarbanes-Oxley (SOX) act on July 30, 2002. The primary objective of SOX was to improve public confidence in financial statement information provided by corporations so investors would continue to provide the funds needed for corporations to operate and grow. While expensive to implement, SOX appears to have met its objective as the number of cases of fraudulent financial reporting and unanticipated bankruptcies has substantially decreased in the private sector over the past decade.

In recent years economic conditions have resulted in severe financial difficulties for most state and local governments. Tax collections have substantially decreased at a time when the demand for government services is increasing resulting in large budget deficits. The federal government provided funds to help the municipal governments cover the shortfalls for a few years but that help is now gone. While state governments do not have the option of declaring bankruptcy to escape financial difficulties, municipal governments can file under Chapter 9. The number of municipalities either declaring bankruptcy or using this threat to force creditors to make concessions has substantially increased in recent years, with the largest of these being the recent bankruptcy filing by Jefferson County in Alabama. Jefferson County currently has over \$4.5 billion in outstanding debt, with \$3.4 billion of the debt being attributed to their new sewer system. The increase in municipal bankruptcies as well as using this option to force creditor concessions has the potential to scare investors away from the municipal bond market at a time when many municipalities will need to raise funds. If this occurs, the borrowing costs for available funds will increase and the municipalities unable to borrow needed funds will be forced to increase taxes on their residents.

The purpose of this paper is to determine if SOX-like provisions applied to municipal governments would have prevented the Jefferson County bankruptcy. While all SOX provisions would not apply to municipal governments, the provisions relating to preventing fraud, improving the audit function, and making sure that municipalities maintain a strong internal control system would provide protection for investors in municipal bonds. In Jefferson County fraud was rampant as several county officials and contractors were sent to jail tied to their activities with the sewer system. Audits of the sewer system found that there were major problems with the internal control system that allowed the fraud to continue over several years. A recent report on Jefferson County's financial reporting system also found that it was impossible to conduct an audit under U.S. GAAP because of the way the financial records were

maintained. Under these operating conditions, it is very likely that SOX-like provisions could have prevented the bankruptcy in Jefferson County.

DOES INVESTING IN PHARMACEUTICAL SECTOR PROVIDE DIVERSIFICATION BENEFITS?

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Abstract

An important question that is of interest in the investment literature is how integrated are sectors of investing. As the regional and global convergence of business cycles progresses, correlation between country specific fundamentals has increased consequently reducing the benefits from country based diversification. Therefore, investors are focusing on the concept of diversifying across different sectors. This study examines dynamic linkages between US equity market returns and global pharmaceutical market returns to provide an understanding of the dominance of country versus industry effects in portfolio diversification. Results from study indicate that S&P500 returns have a significant and positive impact on pharmaceutical indices of Switzerland and Japan. On nature of volatility spillover, we did not find impact of volatility in S&P500 impacting the mean return of any of the sample pharmaceutical returns. We however did find an evidence of a positive and significant volatility spillover from S&P500 returns on the returns of all global pharmaceutical market returns. These results indicate potential for diversification arising from investing pharmaceutical sector.

Keywords: Pharmaceutical sector, asset class diversification, international investing