

THE CHIEF FINANCIAL OFFICER'S PERCEPTION OF
FINANCIAL MANAGEMENT RESPONSE TO
ERODING STATE APPROPRIATIONS

by

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ABSTRACT

State fiscal support for public higher education is declining, particularly during recessionary periods. Public colleges and universities have limited channels of revenue and depend on state appropriations for current operating needs. There is an imperative now for public institutions to do more with less, be more efficient and effective in order to meet national demand. Faced with a difficult financial outlook going forward, it is important to explore the fiscal response being developed and implemented at public four-year institutions.

This study investigated, through a survey response instrument, the strategies and tactics put in place to aid public four-year colleges and universities in sustaining their financial well-being while maintaining pursuit of institutional missions. A study population that included public four-year institutions that experienced at least a 5% or more reduction in state appropriations from fiscal year 2008 to 2009 was examined to determine what financial management strategies and tactics were implemented, as well as the chief financial officers perception regarding fiscal stability. The survey collected data on the implementation of financial management tactics and the relative degree of fiscal impact of each tactic. In addition, survey questions recorded perceptions of the chief financial officers on the guiding principles of selecting a financial management response and the degree to which the implemented strategy achieved fiscal stability.

The results of descriptive statistics and data analyses show that increasing tuition and fees was an integral component of the financial management response to offset the loss of state appropriations. Further, institutions, regardless of enrollment size, were found to implement a

variety of tactics across all strategy types to achieve relative fiscal stability. Chief financial officers indicated that they were able to implement a wide-ranging response to eroding state appropriations that generally achieved their desired level of fiscal stability. The full findings, conclusions, and recommendations are discussed in detail at the end of the study.

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CHAPTER I:

INTRODUCTION

Traditionally, public higher education was funded primarily through state appropriations, and the dedication of public funds recognized the importance of postsecondary education (Thelin, 2004). State fiscal support for higher education was established in order to provide benefits for the public good and ensure that both citizens and industries reaped the benefits of an educated society (Goldin & Katz, 1999). Public higher education was intended to educate the masses and, in return, society as a whole would be rewarded. Significant public benefits result in return for public financial investments to higher education (Zumeta, 2004). Tremendous private benefits are also received from higher education, including social mobility and economic prosperity through higher individual earning ability (Ashenfelter, Harmon, & Oosterbeek, 1999; Haveman & Smeeding, 2006; Perna, 2003).

Considering the numerous benefits of higher education, both public and private in nature, higher education has the attention of policymakers and the public. President Obama declared an initiative that sets a goal for America to have the highest proportion of college graduates worldwide by 2020 (Hebel & Selingo, 2009). Public recognition that higher education is necessary for future success is continuing to increase (Immerwahr & Johnson, 2010). Headlines such as *Colleges to Confront Deep Cutbacks* (Kelderman, 2011) indicate both public attention and concern for public higher education.

Despite the increased attention, public higher education is facing a difficult and bleak financial outlook (Keller, 2009). As state governments have sought to balance their budgets by adjusting the appropriations to higher education (Selingo, 2003), the overall financial stability of

public institutions has declined. State operating support for public higher education was listed as the number one policy issue for 2011 by The American Association of State Colleges and Universities. In reaction to the economic recession that began in December 2007 (NBER, 2010), state support for higher education fell \$5.9 billion from 2008 to 2010 (*Grapevine*, 2011). In a 2009 survey of public and land-grant universities, 85% of the responding institutions indicated that their institution had received a decrease in state appropriations and that the future outlook for the return of funding was discouraging (Keller, 2009). Historically, state support for higher education has declined after each recession (Zumeta, 2004), and the size and scope of the current economic downturn indicates that institutions will face severe fiscal consequences.

Ramifications stem from the fiscal situation impacting public higher education. The impacts of eroding financial conditions are significant to the institution and to the student if not addressed. At the institutional level, fiscal conditions can affect the physical property, operational ability, and quality of educational services provided (Keller, 2009). Physical property, particularly aging plant assets typically found in most of higher education, requires maintenance and repair in order to be usable. Financing concerns threaten infrastructure, academic offerings, and program planning, which impact the ability of the institution to operate as needed to meet the goals, missions and objectives set forth. At a fundamental level, with a growing college-age population, an institution's ability to enroll students is restricted when faced with fiscal constraint. Some of the largest states in the United States, with the most robust systems of education, have begun experiencing difficulties stemming from tenuous financial environments. Recently, in California, overall enrollment in the public college system was reduced by 165,000 students due to financial limitations, even though the number of students seeking enrollment was growing (Keller, 2011). Preliminary budgets in Texas indicate that

program elimination and campus closures may be needed to offset the substantial cutbacks (Mangan, 2011).

Students are impacted by the financial environment of higher education as well.

Consequences to students can range from higher costs, limited access, and career choice implications (Cantor & Courant, 2003; Reindl & Brower, 2001; Trostel, 2009; Zhang, 2009).

The presumption from popular press and public opinion is that institutions of higher education simply raise tuition in order to meet financial obligations or when times are tough. This shift in the cost structure moves the burden from public funding to private funding. As tuition rises, students and their families face mounting financial obligations to access public higher education. The shift impacts all students, but particularly, the students who need assistance in accessing higher education the most, such as underserved and underrepresented groups.

Access and attainment are impacted by the cost of higher education that is shifted to the student and family (Trostel, 2009; Zhang, 2009). Lowered educational aspirations and limited career choice are a significant, often unintended, consequence of the rising price of college tuition. Students that enter higher education are beginning now to choose career paths based on future monetary returns (Cantor & Courant, 2003). The change in academic choice will diminish the public value of education as typically lower paying jobs with high public benefits, such as teaching and public service professions, will be less attractive to students. The areas most likely to be affected are culturally important subjects in the arts, humanities, and social science fields (Cantor & Courant, 2003). This shift in career choice impacts students and society.

Statement of the Problem

State fiscal support for public higher education is declining and public colleges and universities have limited channels of revenue. Historically, state appropriations have typically

been provided to subsidize the majority of operations. However, the traditional revenue pattern for public higher education is undergoing a volatile change, creating a disruption to the financial strategies of colleges and universities.

Prior research has focused on identifying the factors that influence the level of different revenue sources that public higher education institutions receive (Delaney & Doyle, 2011; Hovey, 1999; Humphreys, 2000; Lowry, 2001; Okunade, 2004; Tandberg, 2009); as opposed to the strategies institutions utilize internally to balance revenue availability to meet operating needs. There is an imperative now for public institutions to do more with less, be more efficient and effective to meet national demand. In order to offset substantial losses in state appropriations, a more concerted institutional effort to deal with the changing patterns of revenue will be required. Institutions will need to balance alternative financial management strategies in order to meet public needs. What is not known are the specific financial management strategies and tactics being implemented in order to balance the eroding financial resources at public four-year institutions and this knowledge would be valuable.

Purpose of the Study

The purpose of this study was to gain an understanding of the institutional financial management strategies and tactics being developed and implemented at public four-year institutions in response to the erosion of state appropriations as a key component to the revenue base. The intent was to investigate, through a survey response instrument, the strategies and tactics put in place to aid colleges and universities in sustaining their financial well-being while maintaining pursuit of institutional missions. Further, the researcher attempted to determine differences in the selection and implementation of financial management strategies and tactics based on the institutional type.

Research Questions

This study explored the following research questions. Among CFOs at public four-year institutions that experienced a decrease in state appropriations of at least 5% from 2008 to 2009:

1. What financial management strategies and tactics have been most and least implemented;
2. Which financial management strategies and tactics were rated as having the most and least fiscal impact;
3. What financial management strategies and tactics have been most implemented and rated as having the most fiscal impact based on enrollment size;
4. What channels of information were rated as most influential for CFOs in knowing and understanding which financial management strategies and tactics to implement;
5. Among CFOs at public four-year institutions responding to environmental decline conditions, what guided the selection of financial management response;
6. Were the financial management strategies and tactics implemented at public four-year institutions that experienced a decrease in state appropriations of at least 5% from 2008 to 2009 considered to have satisfied the desired level of fiscal stability of the CFO;
7. What are the psychometric properties of the survey instrument designed to capture the financial management strategy types implemented by CFOs at public four-year institutions that experienced a decrease in state appropriations of at least 5% from 2008 to 2009; and

8. Is there a difference in the pattern of financial management strategy types, determined from exploratory factor analysis, implemented by CFOs at public four-year institutions that experienced a decrease in state appropriations of at least 5% from 2008 to 2009 based on enrollment size?

Significance of the Study

With increased focus on and scrutiny of public postsecondary education, it is imperative to explore the ways in which colleges and universities are balancing available resources. How institutions have responded to the loss of state appropriations is of considerable concern due to the potentially harmful outcomes associated with the decline in the revenue base. Understanding what financial management strategies and tactics institutions are using to offset the erosion of external revenue streams would help to build understanding of a complex process that institutions are facing regarding a serious decline in the resource base in which institutions traditionally place great reliance.

Inherent issues stem from the outcomes associated with managing financial resources on a public campus. Studying the financial management strategies and tactics could allow for improvements in practice and policy that may potentially mitigate consequences of response to eroding fiscal conditions. Institutional missions and goals can be threatened and redirected when revenue patterns change (Reindl & Brower, 2001). Dealing with fluctuations in revenue, particularly an external resource as critical as state appropriations, can alter the priorities of an institution. This change is problematic, particularly at public institutions, due to the components of the mission that are closely tied to public benefit and welfare. If public institutions are potentially refocusing priorities and resources away from traditional goals, this study helps to identify possible tactics that are contributing to a shift in institutional priorities.

Along with potential deviations from the institutional mission, financial management tactics can also expose the institution to new or additional areas of risk. Potential exposure to risk could be in the form of operational risk. Maintenance problems in aging campus buildings, outdated infrastructure, or lack of adequate facilities are elements of operational risk that could be increasing due to the selection of certain financial management strategies and tactics such as prolonged deferment of maintenance or equipment expenditures. Risk, and all the factors associated with managing and controlling risk, can be costly and time consuming for institutions. Particular strategies or tactics to manage changing revenue streams may unintentionally increase future costs to the institution. Identifying what specific financial management tactics are being implemented would allow for additional insight into activities and behaviors that are increasing the potential for increased risk exposure as a result.

This study focused on institutions that experienced a significant reduction in state appropriations. State budget problems are structural in nature and this current trend is expected to continue for higher education funding (Longanecker, 2006), indicating that significant reductions in state appropriations will affect additional institutions in the future. This study provides a wide-ranging catalog of financial management tactics that could be used as a toolkit for other practitioners facing fiscal challenges in the future. The strategies and tactics found in this study may be practical not just for combating losses in state appropriations, but also for application when fluctuations in other revenue or cost structures impact an institutional resource base.

Concern regarding eroding financial resources for education has been explored limitedly, and a paucity of prior research on financial management strategies or tactics in response to declining appropriations exists. Prior research studies have not investigated the complex issue in

the same manner or context as the proposed study. Prior researchers have focused on community college institutions (Novak, 2009; Riley, 1994; Scroggins, 1987), small private colleges (Chaffee, 1984; Morriss-Olson, 1995), or a broad mixture of institutional types (Ganzert, 2000; Zachary, 1991) whereas this study is concerned solely with public four-year institutions. Garrett (2007) and Keller (2009) concentrated on public four-year institutions, however, explored research questions, which were quite different from those guiding this study. More specifically, prior research has failed to establish a way to identify the specific institutions undergoing fiscal constraint due to a restriction in the revenue stream. Ganzert (2000) recommends further survey research with chief financial officers in order to elicit responses during periods of difficult economic times. This study adds to the existing literature because it addresses institutional level financial management tactics for four-year public institutions experiencing a significant reduction in state appropriations. In addition, the survey instrument for this study collected data on institutional responses from chief financial officers, who have a broad role within institutions.

Assumptions

In conducting the current study, the researcher assumed that the state appropriations data in the Integrated Postsecondary Education Data System (IPEDS) for public four-year institutions that were examined to identify institutions facing declining revenue from appropriations has been accurately submitted and recorded. It is further assumed that chief financial officers, or their designee, will have appropriate insight to their institutions financial environment and the responses implemented by the institution to ensure continued operational ability. The researcher also assumes that the survey designed for the study will elicit answers that provide adequate insight to address the research questions of interest. Finally, it is the assumption of the

researcher that chief financial officers will accurately and truthfully answer questions on the survey instrument regarding their institutions response to declining state appropriations.

Delimitations

The primary delimitation of the current study is that surveys were only administered to chief financial officers at public four-year institutions in the fifty United States of America, and the District of Columbia, that experienced at least a 5% decrease in revenue from state appropriations from 2007-2008 to 2008-2009.

Limitations

The research study explored institutional responses to offset the loss of state appropriations at public four-year institutions. Respondents identified the strategies and tactics implemented at their institution in an attempt to continue to operate in spite of reductions in this critical component of the traditional revenue stream. Because of the nature of the study, respondents reported the strategies and tactics known to them through an internet based survey. A certain level of skill may be involved in completing an online survey and participants will need access to the internet to access to instrument. In addition, limitations may exist due to turnover in the position of chief financial officer since 2008-2009. Further, the population size for the study may require a higher response rate needed in order to perform certain statistical calculations with appropriate confidence.

Organization of the Study

This chapter has provided a brief introduction of the current environment for public higher education finance and has introduced the main focus of the research, which is to determine the financial management strategies and tactics implemented at public four-year institutions that experienced a decrease in state appropriations of at least 5% in 2009. An

overview of the current importance of higher education and the trends in finance for public four-year institutions has been discussed. The remaining chapters of this study will be organized as follows: Chapter II provides a review of the literature related to financial trends, the role of the chief financial officer, environmental decline, and financial management strategies and tactics. Chapter III provides an in-depth explanation and rationale for the methodology of the current study including: the research approach, intent of the current study, theoretical framework, study population, study participants, data collection procedures, instrumentation, ethical and security considerations, and statistical and data analysis methods. Chapter IV presents the research findings and Chapter V contains the discussion, recommendations, and conclusions drawn from the study.

CHAPTER II:

REVIEW OF THE LITERATURE

Introduction

Despite growing concerns regarding higher education, adequate research is lacking related to the response of public institutions to fiscal constraint. Additionally, the majority of studies that have explored institutional response were not focused specifically on institutions experiencing fiscal strain, but rather on the universe of institutions at large regardless of the financial condition at each respective institution. This chapter will focus on four areas of research covered in the literature including: financial trends at public four-year institutions; the role of the chief financial officer in higher education; environmental decline; and financial management strategies and tactics in higher education, non-profit organizations, and the corporate setting.

Finance Trends at Public Four-year Institutions

Higher education faces difficult financial times (Keller, 2009). Alterations in the revenue base and scrutiny over increased costs for public four-year institutions have occurred in the last several years and can be expected to continue in the foreseeable future. This section will focus on the current trends in the financial environment for public four-year institutions. The overview will cover trends related to revenue and prior studies related to the level of state appropriations, tuition, and gifts. Trends related to costs and expenditures will be reviewed last.

State funding support for public higher education was significantly reduced beginning in 2008 as a reaction to the economic recession occurring throughout the country. According to the

National Bureau of Economic Research, the latest economic contraction began in December 2007 and lasted until June 2009 (NBER, 2010). The corresponding reduction in state financial support ended a period of recovery starting in 2004 that was just beginning to return funding to pre-2001 recession levels (SHEF, 2010). According to the annual *Grapevine* study on state fiscal support for higher education conducted by Illinois State University's Center for the Study of Education Policy, fiscal year 2008 state tax appropriations for all higher education was \$77.5 billion. This support included state support for community colleges, public and private four-year institutions, education governing boards, governmental education offices, various other higher education related agencies, state scholarships, other state student financial aid, and any specially designated line-item appropriations. State tax appropriations for fiscal year 2009 were \$75.4 billion and fiscal year 2010 was \$71.6 billion, a reduction of more than \$5.9 billion. The downward trend reinforces that state governments have used funding for higher education in many ways as the means to balance state budgets, and appropriations to higher education face drastic cuts when states encounter economic difficulty (Hovey, 1999). These state appropriations for higher education are critical for each institution to operate. Of the 2010 support provided by state and local governments, 78% was used for general operating expenditures at higher education institutions (SHEF, 2010). A majority of the state support goes directly to cover short term operating expenditures such as payroll, utilities, and supplies. Reductions in a funding stream critical to financing an institution's current operations creates immediate fiscal strain. A survey in 2009 of the 188 members of the Association of Public and Land-grant Universities (APLU) captured the downward trend in state appropriations (Keller, 2009). Only 13.1% of the respondents indicated that their institutions financial outlook over the

next 18 months was optimistic and 56.8% responded that additional cuts in state appropriations were likely.

The American Recovery and Reinvestment Act (ARRA) provided temporary funds from 2009 to 2011 for states to stabilize their budgets and embark upon economic recovery. These funds are commonly referred to as federal stimulus funds or state fiscal stabilization funds. Some of the funds allocated to the states through ARRA were then allocated to higher education to help offset the substantial loss of appropriated dollars. However, the temporary support provided by ARRA funds was not a dollar-for-dollar offset to the tremendous loss of state appropriations. Furthermore, ARRA funds were distributed at the discretion of each state and these funds impacted individual institutions in various ways. Each state handled the distribution of federal stimulus funds differently and, for many colleges and universities, the decision as to how the institution could use the federal dollars was made at the state level rather than by the institution (Keller, 2009). States had the ability to designate funding for specific uses such as deferred maintenance and capital projects, which were popular because the funding was only temporary. Some institutions indicated that they received federal stimulus funds from the state via restricted research grants, job creation initiatives, and economic development, and not for use of fiscal stabilization (Keller, 2009). This further limited the ability of the ARRA funds to offset the fiscal constraint on many campuses. In 2009, \$2.3 billion in ARRA funds were used by 15 states and in 2010, 43 states provided \$4.8 billion in ARRA funds to higher education (SHEF, 2010). Of the 87 respondents of the APLU survey, 73.6% indicated that they received federal stimulus funds, although not necessarily to be used for general operating purposes (Keller, 2009). Despite the availability of ARRA funds, institutions faced a bleak revenue outlook as indicated

by more than 50% of respondents to the APLU survey acknowledging that an overall decline in total revenue occurred at their institution (Keller, 2009).

In addition to state appropriations, revenue from tuition and fees also provide substantial fiscal support for public higher education institutions. Following periods of recession when state funding support fails to maintain consistent levels, tuition revenue rises as a percentage of institutional revenue (SHEF, 2010). State appropriations and tuition traditionally provide the bulk of funds available for public colleges and universities to use as general operating funds. With state appropriations currently falling short and costs continuing to rise, the result has been an upward trend in both tuition pricing to the student and tuition as a percentage of total education revenues. According to the College Board's annual study on trends in college pricing, average published tuition for in-state students at public four-year institutions increased 6.4% from 2007-08 to 2008-09 followed by a 6.5% increase from 2008-09 to 2009-10. The percentage increase represented an \$823 change in tuition in the two-year period. The trend is expected to continue with a 7.9% increase (\$555) in in-state tuition at public four-year institutions from 2009-10 to 2010-11 (Baum & Ma, 2008; Baum & Ma, 2009; Baum & Ma, 2010). At four-year public institutions, tuition and fee revenue represented 17.93% of total revenues for 2007-08. For 2008-09, the percentage of total revenue from tuition and fees was up to 20.09% over one fiscal year (NCES, 2010). Despite the trend of increasing tuition and pursuing revenue generation through tuition and fee increases, many public higher education institutions have experienced a net decrease in total revenues (Keller, 2009). Colleges and universities face mounting pressure to hold down future tuition increases and public sentiment is growing weary of hikes in tuition (Immerwahr & Johnson, 2010).

Public institutions have not been able to replace lost public funding support through privatization of tuition increases. Support per student has continued to decrease, both in terms of total education revenue per student full time equivalent (FTE) and state support per student FTE. Colleges and universities are educating more students with fewer dollars than at any other time. Even with tuition trending upward as a revenue source, total education revenue per student FTE decreased in 40 states from fiscal year 2009 to fiscal year 2010 (SHEF, 2010). State funding per FTE hit a 25 year low in 2010 (SHEF, 2010). Appropriations per student were 19% lower for 2009-2010 than 1999-2000 (Baum & Ma, 2010), despite an increasing percentage of the population that view a college education as a necessity to success in today's job and economic environment (Immerwahr & Johnson, 2010).

State Appropriations

As noted by the national higher education finance trends, state appropriations have been decreasing. Despite this erosion in overall support to institutions, state appropriations remain a vital component of the financial base. State appropriations remain the largest source of funds for public institutions, both in terms of total revenue (NCES, 2010) and revenue for general current operating obligations (SHEF, 2010). Other revenue streams are more restrictive in nature and may not always be used to meet current obligations, whereas, state appropriations provide considerable support for a range of activities from instruction and student services to capital concerns. Therefore, state appropriations to institutions are vital.

Several prior researchers have examined the variables that influence state appropriations to higher education. Empirical findings confirm that a complex and multifaceted relationship exists and that economic, political, and cultural factors impact the level of funding appropriated to public higher education institutions. Economic factors related to appropriations will be

discussed first, followed by a discussion of the prior research studies indicating political factors involved in state appropriation levels. A review of the research related to cultural and demographic variables that impact state appropriations to higher education will be last.

Numerous researchers have indicated that state appropriation levels for higher education are associated with the overall economic climate in the state (Delaney & Doyle, 2011; Hovey, 1999; Humphreys, 2000; Lowry, 2001; Okunade, 2004; Tandberg, 2009). Hovey (1999) argued that higher education funding is the primary method for states to balance their budgets. Poor economic times impact funding for higher education particularly hard, more so than other state budget lines. However, higher education is rewarded at higher rates during good economic times (Hovey, 1999). The cycle acts to balance state budgets (Hovey, 1999). Other empirical studies have confirmed this behavior in regards to state appropriations (Delaney & Doyle, 2011; Humphreys, 2000; Lowry, 2001; Okunade, 2004). Researchers have found support for Hovey when testing overall state tax revenue (Lowry, 2001), state indebtedness (Okunade, 2004) and per capita income (Delaney & Doyle, 2011; Humphreys, 2000). However, Tandberg (2009) found that there was a negative association of overall gross state product per capita to state appropriation level. He argued that where gross state product per capita was an indicator of economic condition, it was negatively associated with appropriation level. As gross state product per capita increased, states invested more heavily in other industries and not in postsecondary education. This finding indicated that as state conditions improved, relative to gross state product per capita, higher education did not receive disproportionately larger increases in funding compared to other state activities.

Other economic factors, such as unemployment rates, corrections spending, or spending on Medicaid, have been examined in relationship with the level of state appropriation. Using

unemployment rates to examine appropriations levels, researchers have found a predominantly negative relationship. Kane, Orszag, and Gunter (2003), Tandberg (2009), and Toutkoushian and Shafiq (2008) documented the negative relationship of unemployment level to state appropriation level through empirical tests. Of growing concern is state spending related to Medicaid and corrections. Kane, Orszag, and Apostolov (2005), Kane et al. (2003), Okunade (2004), and Tandberg (2009) found that Medicaid expenditures competed with appropriations for higher education. They found that when states spend more on Medicaid, less funding was available for higher education. However, Archibald and Feldman (2006), as well as Weerts and Ronca (2006), found that Medicaid spending was positively associated with appropriations. Spending on corrections provided conflicting findings similar to those findings concerning Medicaid and higher education appropriations. Kane et al. (2003) found that spending on corrections had a negative relationship on state appropriation levels, while other researchers have found that spending on corrections had a positive relationship to higher education appropriations (Archibald & Feldman, 2006; Okunade, 2004).

Political variables have also been found as a factor in determining state appropriation levels. Political party affiliation has been included in numerous studies on appropriations. Democratic ideology has been linked to higher levels of state appropriations (Archibald & Feldman, 2006; Dar & Spence, 2010; Kane et al., 2003; Okunade, 2004) and republican influence has been linked to lower levels of state appropriations (McLendon, Hearn, & Mokher, 2009; Weerts & Ronca, 2006). Tandberg (2009) also found that a positive relationship between political ideology and appropriations existed where state citizenry's political ideology was liberal. Delaney and Doyle (2011) found no statistically significant relationship between political affiliation and appropriations. On the other hand, legislative professionalism was found

to have a positive relationship with state appropriations for higher education (McLendon, Hearn, & Mokher, 2009; Tandberg, 2009). Legislative professionalism was considered based on the length of legislative session, level of legislator's pay, and legislative staff resources. Where legislative professionalism was high, state appropriation levels were also high (McLendon, Hearn, & Mokher, 2009; Tandberg, 2009). Also of interest to researchers was the relationship between lobbyists and higher education appropriation levels. Empirical findings indicated that interest group volume and activity have a positive relationship with state appropriation levels (McLendon, Hearn, & Mokher, 2009; Tandberg, 2009).

Still, other factors, cultural and demographic in nature, also are related to state appropriation levels. Hossler, Lund, Ramin, Westfall, and Irish (1997) used regression and exploratory factor analysis to identify prior levels of state appropriation and enrollment as the two variables that were the most significant predictors of appropriations. Other researchers also have used empirical findings to support enrollment as having a positive association with appropriation levels (Delaney & Doyle, 2011; Tandberg, 2009; Weerts & Ronca, 2006). Leslie and Ramey (1986) found that enrollment elasticity of appropriations, measured as the relationship of appropriation funding to institutional enrollment, was weakening, indicating that increases in student enrollment only brought marginal gains in appropriations. They argue that causality in the appropriations-enrollment relationship was difficult to separate from incrementalism, defined as the normal increases in funding to general economic growth, because enrollment gains have been relatively steady. More simply stated, state appropriations have increased due to overall economic growth and the same time enrollments have increased due to natural occurrences and causality between the two cannot necessarily be attributed. Reliance on private higher education, measured by enrollment within a state at private institutions, proved to

have a significant negative relationship with state appropriation levels for higher education in prior research (Delaney & Doyle, 2011; Lowry, 2001). Public two-year enrollment also has a significant negative relationship to appropriations (Delaney & Doyle, 2011). Contradictory findings regarding governance structure and appropriation levels also have been documented. Lowry (2001) found that fewer governing boards led to higher levels of appropriations and posited that the unified approach helped increase appropriation levels. Delaney and Doyle (2011), however, found that no relationship between governance structure and state appropriation levels existed.

To summarize, prior research that has examined the variables related to the level of state appropriations have provided mixed indications. The diversity of factors that influence the funding level of state support to public higher education, along with the conflicting findings for many variables, reiterate the complexity of the appropriation process. A combination of economic, political, and cultural components seem to be part of setting the level of appropriations that an institution receives.

Tuition

Tuition and fee revenue is an increasingly important component of public four-year institutions revenue base. As discussed as part of the recent trends for public four-year institutions, tuition levels are rising (Baum & Ma, 2010). Similar to factors influencing the level of state appropriations, tuition levels are determined through an intertwined complex set of relationships among many variables. The level of tuition at public four-year institutions has been explored through various prior research studies (Burgess, 2011; Greene, 1994; Hearn, Griswold, & Marine, 1996; Koshal & Koshal, 2000; Lowry, 2001; McLendon, Hearn, & Hammond, 2006;

Rizzo & Ehrenberg, 2004; Rusk & Leslie, 1978). The relationship of tuition to state appropriations, as well as economic, demographic, and institutional factors will be reviewed.

Numerous regression studies have documented the existence of a relationship between the level of state appropriations and the level of tuition, further confirmed when studying data sets spanning different lengths and periods of time (Burgess, 2011; Koshal & Koshal, 2000; McLendon, Hearn, & Hammond, 2006; Rizzo & Ehrenberg, 2004; Rusk & Leslie, 1978). These researchers' empirical analyses indicated a significant negative relationship between state appropriations and tuition levels. Where state appropriation levels were lower, tuition levels were higher. Tuition levels were at least partially a function of other political factors such as liberal ideology. An increased presence of liberalism and minority legislators was associated with lower tuition levels (McLendon et al., 2006).

Many economic and demographic variables share some role in tuition levels at public four-year institutions. McLendon et al. (2006) as well as Rizzo and Ehrenberg (2004) found a positive relationship between unemployment rates and tuition levels. Tuition levels were higher when unemployment rates were higher. Somewhat conflicting findings are present for other economic indicators. State tax revenue and tuition had a negative relationship (McLendon et al., 2006) and per capita income and tuition had a positive relationship (Lowry, 2001; Rusk & Leslie, 1978). Demographic variables, such as population age and geographic region, were also related to tuition levels. McLendon et al. (2006) found a negative relationship with the states population of college age citizens (18 to 24 year olds) and tuition. In states with more citizens of college age who potentially could participate in public higher education, tuition levels were held lower. Perhaps the greatest determinant of tuition levels was geography. Institutions maintained tuition levels similar to other institutions within their respective geographic region (Burgess,

2011; Hearn, Griswold, & Marine, 1996; Koshal & Koshal, 2000; Rizzo & Ehrenberg, 2004; Rusk & Leslie, 1978).

Factors such as enrollment patterns, campus autonomy, institutional quality, and costs have been studied to determine if any relationship exists with tuition levels. Likewise, enrollment patterns related to out-of-state student percentages and competition from other types of higher education institutions have been studied. The percentage of out-of-state students at a public institution is positively associated with higher in-state tuition levels (Greene, 1994; McLendon et al., 2006). Competing interest in two-year colleges and in private colleges and universities also played a role in the level of tuition. Although McLendon et al. (2006) found no statistical link in two-year college enrollment, Rizzo and Ehrenberg (2004) found evidence that higher enrollment at two-year colleges within a state was related to lower levels of tuition at public four-year institutions. Institutions situated in states with more competition from private colleges and universities were positively associated with higher tuition levels (McLendon et al., 2006; Rizzo & Ehrenberg, 2004; Rusk & Leslie, 1978). Burgess (2011) found that institutions with less autonomy were found to have lower tuition levels, while other researchers found that campuses with greater autonomy had higher levels of tuition (Lowry, 2001; McLendon et al., 2006). Surprisingly, Rusk and Leslie (1978) found no link between tuition level and institutional quality or faculty salary costs.

Gift Revenue

Gifts are an additional revenue stream that higher education institutions can cultivate in order to provide additional financial resources. A variety of factors contribute to the level of gift income. Higher education institutions receive gifts from private individuals, both alumni and non-alumni, businesses, non-business corporations, and religious groups (Leslie & Ramey,

1988). As with the level of state appropriations and the level of tuition revenue, gift revenue has been associated with a number of internal and external variables, and the level is not always at the discretion of the institution to change or control.

Contradictory results have been reached through prior empirical studies regarding the relationship of state appropriations to gifts. Leslie and Ramey (1988) found support through regression modeling of a negative relationship between state appropriations and private individual gift revenue for data from 1977 to 1980. When institutions received higher state appropriations, alumni and non-alumni giving was lower. Also, using regression for 1994 to 2004, Cheslock and Gianneschi (2008) found the relationship between state appropriations and giving to be positive.

Further, institutional factors have been studied to explore the level of gift revenue for institutions. Interestingly, institutional soliciting efforts were found to have no statistical significance on the level of gift revenue (Cunningham & Cochi-Ficano, 2002; Leslie & Ramey, 1988). This indicated that institutions cannot simply fundraise in order to offset declines in revenue from other sources. Cunningham and Cochi-Ficano (2002) also found that campus sports team, religious affiliation, percentage of enrolled minority or female students had no significant relationship to gift revenues. Academic quality (Cunningham & Cochi-Ficano, 2002; Leslie & Ramey, 1988) and institutional prestige (Leslie & Ramey, 1988; Oster, 2003) were found to have significant positive relationships with gift revenue levels, however.

Economic factors also play a role in determining gift levels for institutions. Leslie, Drachman, Conrad, and Ramey (1983) found that voluntary individual giving to higher education was up when economic indicators were down, while corporate donations to higher education were higher when economic indicators were strong. The authors argued that the

findings showed that individuals, particularly alumni, will donate in times of perceived need. In a 1995 survey, Taylor and Martin found that perceived financial need was varied between donors and non-donors. In a later study, Leslie and Ramey (1988) found that individual economic indicators, per capita income, and dividend and interest income, had no significance to giving levels, but Taylor and Martin (1995) found that family income was a contributing factor in determining if an individual donated and the amount of the gift given.

Costs and Expenditures at Public Four-year Institutions

After examining one part of the higher education business model, revenues, it is clear that institutions have limited ability to adjust revenues due to the complex relationship that exists between the cultural, political, and economic variables involved in revenue attainment. Costs and expenditures are also a critical component of any operating model. As public concern grows over the price of college, many focus blame on higher education costs and expenses (Archibald & Feldman, 2008). Higher education costs can be classified across several expenditure types: instruction, research, public service, student services, academic support, institutional support, scholarships and fellowships, plant operations and maintenance, and auxiliary enterprises (Desrochers, Lenihan, & Wellman, 2010).

The cost of providing education in the postsecondary arena is increasing. As institutions expand services, strive for improved quality, and incorporate new instructional methods, expenditures must rise to meet new goals and obligations. In a ten-year study on costs and expenditures by the Delta Cost Project (Desrochers, Lenihan, & Wellman, 2010) from 1998 to 2008, there are clear indications of significant spending across all institutional expenditure types at public doctoral and public master's level institutions. As a percentage change, expenditures for instruction saw the smallest increase when compared to research, student services, public

service, academic support, institutional support, or operations and maintenance. However, in terms of gross dollars spent, expenditures for instruction showed large increases for the 10-year period. Public doctoral institutions had a 10.1% increase in instructional spending, which represents an \$895 per FTE increase. Public master's level institutions had an 8.2% increase in instructional spending, which represents a \$471 per FTE increase. Public doctoral institutions increased spending on research by \$1,039 per FTE for the 10-year period while public master's level institutions had an increase of \$215 on research. Spending on institutional support, often considered administrative salaries, had a \$407 increase per FTE at public research institutions and a \$248 increase per FTE at master's level institutions. Expenditures on institutional support were smaller in total dollars, but larger in terms of a percentage increase. Institutional support expenditures were up 19.9% and 13.7%, compared to instructional expenditure increases of 10.1% and only 8.2%, at public doctoral institutions and master's level institutions, respectively. Other expenditure types had increases across the 10-year period as well. No one classification of expenditures bears full responsibility for increased spending, as all expenditure types had per FTE increases of greater than 10%.

Table 1

Change in Spending per FTE from 1998 to 2008

Expenditure type	Dollars	Percent	Dollars	Percent
Instruction	895	10.1%	471	8.2%
Research	1,039	23.0%	215	47.9%
Student Services	220	20.1%	215	18.7%
Public Service	277	17.0%	128	25.5%
Academic Support	375	15.6%	146	10.9%
Institutional Support	407	19.9%	248	13.7%
O&M	443	26.0%	362	27.9%
Total	\$3,656		\$1,785	

Note: Data Source: Delta Cost Project, 2010

Costs in higher education are complex. Bowen (1980) explained that institutions seek more revenue in order to increase spending so that an institution can increase “educational excellence, prestige, and influence” (p. 20). The only constricting factor to spending is the amount of revenue available, so institutions seek to increase revenue to be able to spend more. Ehrenberg (2003) argued that increased competition and rankings, such as the *U.S. News and World Report* annual ranking, provide institutions with incentives to spend more in order to increase their status because part of the criteria of the ranking is based on expenditures per student. Micceri (2000) identifies two cost drivers that go unnoticed in higher education. One is that more funding is typically provided to those institutions that spend more. If institutions work to control costs, the reward may be less state funding. The second cost driver is the effort by institutions to use national averages as a standard to increase faculty and staff pay (Micceri, 2000). This behavior creates a circular activity pattern where costs escalate. Archibald and Feldman (2008) defended higher education costs with empirical tests designed to determine how

higher education costs rank alongside other industries. They found that the rise in cost for higher education was similar to increases in other industries that utilize well-educated workforces.

There are several specific activities in which higher education has significant cost considerations including student services, construction and maintenance costs, technology costs, and faculty and staff salaries. Francis and Hampton (1999) found through regression methods that institutions will spend more on student services as the amount of funding comes from tuition and other private sources. Their findings indicated that increased expenditures on student services can be expected as state appropriations decreased. Providing further incentive for institutions to increase student services spending, Webber and Ehrenberg (2010) found that expenditures on student services are positively associated with student persistence and graduation rates.

Higher education construction costs are particularly expensive. Construction in the academic arena carries substantial prices due to specialized needs, complexity of activities, maintenance issues, and sustainability concerns (Guckert & King, 2004). In addition, technology is an important piece of institutional activity with an associated cost of delivery and maintenance. All units and functions of the campus require information technology needs. This rise in technological importance carries with it costs related to purchasing, maintaining, and protecting campus technology assets, and few institutions have significant plans to address the concerns (Phipps & Wellman, 2001). Higher education is provided by highly skilled and trained individuals and a majority of expense activity is related directly to human capital in the form of salaries, wages, and benefits. Harter, Wade, and Watkins (2005) found that faculty salaries were the largest portion of increased expenditures per student for the period of 1989 to 1998. As institutions grow and become more complex through government regulations, industry oversight,

and intricate financing methods, expenditures associated with administrative duties also increase (Morphew & Baker, 2004). Salaries for administrative personnel have become an often cited reason for the increase in costs for higher education, particularly among faculty members (Immerwahr, Johnson, & Gasberra, 2009). Expenditures for administrative salaries are increasing, but appear to be at levels of increase comparable to spending on instruction (Hedrick, Wassell, & Henson, 2009).

Similar to many other industries over the past decade, costs and expenditures in public higher education have been increasing. Institutions seek to maximize revenue in order to spend more on instruction, research, and new initiatives in order to increase quality and prestige (Bowen, 1980). Public concern over the rising price of education at institutions has focused much attention on how institutions respond to changing operating environments. More specifically, the chief financial officer at an institution has a unique role regarding the changing environment related to revenues, costs, and expenditures.

The Chief Financial Officer's Institutional Role

As financial diversification has occurred throughout public higher education, the role of administrators of the business functions of institutions has grown tremendously. The chief financial officer's (CFO) role is increasingly important, given the conditions higher education faces. As revenues, costs, and institutional operations grow in complexity to balance the shifting fiscal environment, CFOs have assumed a critical role that encompasses many important operational issues above just sound financial recordkeeping. A vast range of job responsibilities and duties require significant attention from the chief financial officer of the institution (Ayers & Russel, 1962). This section will cover the overarching responsibilities of a chief financial

officer, the specific functions related to the core business and financing of the college, and the broader functions that cross all departments.

Historically, having separate administrators to manage and oversee the financial operations of higher education institutions began at the turn of the 19th century, the same time other administrative positions were created (Witmer, 1969). The CFO position has grown and developed into one of a select few positions that report directly to the president (Jenkins, 1985) and possesses immense control and influence over institutional decision-making and policy, due to the position's areas of responsibility, regardless of where the position fits on the official organization chart (Jenkins, 1985).

The additional administrative level of a dedicated finance officer is important for many reasons. The chief financial officer provides very specialized expertise within a complicated environment and oversees many important institutional departments and functions. In a study investigating characteristics of colleges that improved their Institutional Functioning Inventory (IFI) scores despite facing declining resources, Anderson (1985) found that reduced democratic governance was related to improved finances. That is, the less the shared decision-making with institutional participants regarding financial matters, the more improved the financial position of the college would be. Interviews with faculty and administrators at campuses with declining financial conditions revealed that administrators were much more concerned by financial pressures than faculty, as perceived by the researchers, due to the amount and intensity of focus on fiscal concerns by administrators (Anderson, 1985). Administrators at institutions with rising IFI scores were more likely than their counterparts to take considerable and distinct actions regarding personnel. These actions included curtailing promotions, dismissing employees and becoming generally concerned in human resource matters (Anderson, 1985). The findings

indicated that financial officers can act as a buffer because they are tasked with helping the institution maintain fiscal stability, which allows faculty to focus on concerns other than financial conditions. Faculty members are able to continue teaching, performing research, and providing service at high levels in light of fiscal concerns because financial management is being addressed by other institutional administrators.

Understanding the overall characteristics of the CFO position is necessary in order to better understand the typical career path, work experience, and institutional role. In a survey-based study, Stauffer (1990) found that the majority of CFOs came from within the higher education sector and that only 20% came from a sector external to higher education. The 2010 study conducted by the National Association of College and University Business Officers (NACUBO) indicates that a larger percentage of current CFOs come from outside the ranks of higher education. NACUBO findings indicate 44% of current CFOs came from outside of higher education. Both studies reveal, however, that the more complex the institution; the more likely the CFO is to come from within higher education (Stauffer, 1990; NACUBO, 2010). This means that, in institutions like public four-year colleges and universities, there is a significant probability that the CFO came to the position with substantial experience within a higher education setting. McFall (1999) found, in a survey of CFOs, that the most commonly held positions prior to the chief financial officer role were controller, assistant vice president, vice president at another institution, and budget director. Later, in a 2010 NACUBO survey, CFOs previously held roles as follows: 33% from the controller position, 19% from an assistant or associate vice president role, and 15% from a director of budget or finance (NACUBO, 2010).

The typical higher education CFO is 55 years of age and more than 80% are within the ages of 45 to 65. Approximately two-thirds of CFOs across all institutions are male, and that

percentage rises to above 75% male at public comprehensive and research universities. 90% of all CFOs are white, with 5% being African-American. Educational backgrounds are similar in that nearly all have bachelor's degrees and 76% have advanced degrees. 11% hold doctorates and 38% have a CPA, the license for certified public accountants (NACUBO, 2010).

In a descriptive study conducted to determine the leadership orientation, according to Bolman and Deal's Leadership Orientation Questionnaire, of CFOs in public four-year institutions, Hacking (2004) found that CFOs identified their predominant leadership orientation as that of a human resource orientation followed closely by a structural orientation. Bolman and Deal (1991) describe the four frames for managing: structural, human resource, political, and symbolic. The structural frame emphasizes direct goals and efficiencies using very close analysis and data on organizational information. The human resource frame focuses on employee needs where the manager values the individual relationships and feelings. These managers tend to assume that meeting employee needs will increase the operating ability of the organization. The political frame views the organization as a place of continuous conflict where negotiating, power grabbing, and deal making exist. The symbolic frame posits that the organization has deep cultural roots that drive behavior and that symbols, ceremonies and stories influence employee activity (Bolman & Deal, 1991). Hacking (2004) found that CFO's best described their skill set as that of the structural orientation, indicating that CFO's preferred to use data, analysis, and direct information to lead and manage. Using one-way ANOVA testing, no significant differences were found between CFO characteristics of age, gender, years in current position, or perceived management effectiveness and the leadership orientation (Hacking, 2004). The results indicate that, at the macro level, CFOs possess similar skill sets and prefer to make decisions and manage in similar ways regardless of individual demographic characteristics. The

orientation that CFOs use to frame their duties and responsibilities is similar across institutions and personal characteristics. These findings indicate that CFOs, as a group, share similar characteristics and that focusing on personal traits such as age, sex, and race as independent variables is unwarranted.

Chief financial officers have a broad array of responsibility in their posts within public higher education. Their role covers a multitude of activities that cross institutional boundaries and range in depth from providing the highest level assessment, to monitoring the smallest detail in financial accounting matters. In a speech to the National Association of College and University Business Officer's, Bowen (1971) described four general tasks which the position was to handle in order to most effectively manage educational resources. First, the CFO was to assess the overall general financial setting in the country and throughout the world. This assessment would help the business officer understand the economic direction and impact on the institution as well as provide data and understanding to academic associates. Second, in the same context, the officer should be fully in tune to the economic and financial condition of the institution and how economic concepts impact the campus. Third, information should be shared and disseminated to other personnel so that the nuances of costs and productivity can be utilized at all levels. Fourth, the business officer should also facilitate pricing and resource allocation decisions and provide knowledge to enhance understanding and acceptance of fiscal conditions and policies (Bowen, 1971).

Several areas of responsibility guide a CFO in meeting the four objectives laid out by Bowen. Ayers and Russel (1962) outlined the basic responsibilities of the CFO in a way that was intended to provide a guide in order for institutions to examine their internal administrative

structure so that higher education could better respond to the pressures of increasing quantity and quality. The administration of business should include basic components of:

financial reporting; budget preparation and control; receipt, administration, and custody of all funds; purchasing; internal auditing; contracts; payrolls; the investment of funds; the business management of auxiliary enterprises; the construction, maintenance, and operation of physical facilities; and the administration of nonacademic personnel. (Ayers & Russel, 1962, p. 14)

In addition to these core and central responsibilities of the CFO position, there are other various job components that cross departmental boundaries and influence the campus at a macro level. Cost containment, endowment management, risk management, campus master planning, facilities operation and maintenance, and budgeting are additional vital roles the CFO may direct (Abraham, 1999; Caruthers & Layzell, 1999; Chabotar, 1999; Falduto, 1999; Green, 1992; Reed, 1999; Salluzzo, 1999; Spitz, 1999; Varley, 1973) and will be discussed next.

The chief financial officer is responsible for addressing cost containment issues on campus (Reed, 1999). Frequently, the CFO is the one to be the bearer of bad news, push campus participants to trim costs at the margin, and pursue ways to increase efficiency. Even in good economic times, the pressure to contain and control costs is present (Reed, 1999). Costs can be analyzed at all levels and functions of the institution, and the CFO has the difficult task of determining what can be done without changing the quality of educational services. This responsibility requires the CFO to be familiar with institutional goals and agendas, and to establish priorities in funding to drive the campus towards the destination set forth by campus leaders and directors. Costs play a significant role in the affordability of higher education and with the increased public scrutiny given to access, chief financial officers will continually monitor costs and investigate ways to limit and control spending.

With erosion in state funding support for public higher education, increased competition for grant dollars, and pressure to limit tuition increases, revenue from endowments continues to grow in importance. Although a small portion of most institutional budgets, endowments can provide relative stability if managed with due diligence. The CFO's role will differ from institution to institution but, even at a minimum, the CFO will be centrally involved in the endowment management process by providing and maintaining vital information (Spitz, 1999). Some chief financial officers will be involved to the point of determining investment policies and asset allocation, while others will only feed information to committee members regarding endowments (Spitz, 1999). Regardless of where along the span of responsibility a particular CFO falls, considerable knowledge and authority regarding endowment policies and sustainable spending procedures is required (Reed, 1999).

An increasingly complex matter on campuses in the operational climate in which CFOs function is that of risk management. "The specific role of the chief financial officer is to identify risk, develop a campus plan to reduce and control risk, transfer risk, track and report the cost of risk management" (Abraham, 1999, p. 83). The types of risk fall into five wide ranging categories including physical risk, casualty risk, fiscal risk, business risk, and reputational risk (Abraham, 1999). Safeguarding campus assets against loss is a mission critical function that keeps the chief financial officer connected to all layers within the institution. Along the same lines as protecting campus assets through risk management is ensuring safety and security for campus participants. This area is an operational one for which the CFO has major responsibility (Jenkins, 1985). Safety and security could be under the direct oversight of a campus uniformed police unit and security resource group, or could require the CFO to serve as a coordinator with local city and state police departments to adequately protect the participants within the

institutions boundaries. Both risk management and safety are important issues concerning the office of the CFO.

Current and long term planning are encompassed inside of a detailed and comprehensive campus master plan. Because of the implications of the process, “it is in the best interest of the CFO and the institution for the CFO to be actively involved in the master planning and capital budgeting processes” (Caruthers & Layzell, 1999, p. 73). Numerous issues must be considered that make the campus master plan an integrated process including projected enrollment, expected staffing levels, expected academic program needs, support programs and campus activities, physical space use and condition, land availability, local community considerations and financial considerations (Caruthers & Layzell, 1999). Due to the responsibility and role of overseeing campus physical facilities and the campus master plan, the CFO also becomes the defacto campus environmentalist (Varley, 1973). Therefore, the CFO is concerned not only about the physical property aspect, but also environmental issues stemming from campus activities.

Campus master plans deal specifically with physical assets and property. Facility operations and maintenance, as well as construction and renovation of campus property, is an essential part of the role that chief financial officers undertake. With aging infrastructure on campuses, this role demands an increasing allotment of time and attention. Facilities operation and maintenance impacts all levels of the campus and typically represents between 8% and 12% of the total institutional budget. Facility operations and maintenance includes repair, replacement, inspection, maintenance, preservation of campus buildings, grounds, equipment and utilities (Green, 1992).

Similar to the way a campus master plan guides and directs physical resources, an institution-wide budget concerns financial resources and provides a plan and priority through

which those resources will be consumed. The chief financial officer is in direct control of developing, implementing and monitoring an institutional budget. Public institutions that deal with state agencies and share power with external constituencies often have a top-down approach in which the CFO is the primary administrator in the budget development process (Chabotar, 1999). Developing the budget is a critical function of the CFO because decisions and goals of the institution are established through the budget process (Salluzzo, 1999).

As a supplement to the overall institutional budget, the CFO also has the task of planning and monitoring more specialized budgets that impact campus, such as the information technology budget and the capital budget. The technology component of every institution is of mounting concern and undergoes rapid change, more so than many other activities on campus. “Technology is the most rapidly changing support factor that higher education has yet experienced” (Falduto, 1999, p. 39). Due to the complex nature of information technology needs, the chief financial officer must manage and participate in the planning and implementation of information technology budgets (Falduto, 1999). Another specialized budget the CFO oversees with significant long-term campus impact is the capital budget (Caruthers & Layzell, 1999). Capital budgets focus on the needs of the institution related to long-term facility, infrastructure, or equipment concerns. The capital budget is specialized, given that it typically draws on separate revenue sources like debt instruments, private giving, and earmarked federal and state monies. The capital budget must be managed in unison with the campus master plan and the activities are closely related for a CFO (Caruthers & Layzell, 1999).

Chief financial officers at public institutions of higher education have a broad and diverse set of roles and responsibilities. The processes in which they are involved have considerable influence on campus goals, missions, and operating ability. The core areas in which chief

financial officers spend substantial amount of time are those central tasks of financial management such as accounting, budgeting, recording and administering all funds (Ayers & Russel, 1962). Many of their tasks are integrated throughout the institution and extend across all departments. Responsibilities in the areas of budget planning, campus facilities oversight, and campus master plans help to directly and indirectly guide the institution in the pursuit of the mission. This holistic vantage point accorded to the chief financial officer makes the position within the institution broad in that direct communication, knowledge, and influence is involved throughout various levels of the organization. The chief financial officer has a direct role in leading the institution through periods of both financial growth and decline.

Environmental Decline

The financing structure of public higher education is changing and institutions are certainly doing more to diversify the revenue base used to support the campus. Even with the increased importance of multiple income streams, funding through state appropriations remains a vital component of the public higher education model. As the current trends have shown, the revenue stream from state appropriations is eroding and becoming far less stable than in the past (SHEF, 2010). Funding from an income stream as volatile as state appropriations makes public higher education particularly susceptible to external factors which institutions have no ability to control. This reduction in financial resources has an impact on organizations. The outline for this section is as follows: First, a definition for environmental decline will be provided with an outline of the associated concepts. Second, models and frameworks that focus on decline will be discussed. Lastly, the consequences of environmental decline will be explored.

Currently, the most prominent decline condition in public higher education is decline caused by external environmental conditions. This environmental decline is associated with

restricted or limited financial resources (Cameron, Whetten, & Kim, 1987b). Environmental decline is not decline that an organization brings upon itself due to poor leadership, improper management, or any other internally related activity for which the organization can exert control. Cameron and Zammuto (1983) further explained this as ignoring “the kinds of decline that result from mismanagement or mistakes in organizations, and instead consider only the kinds of decline that are induced environmentally” (p. 127). Environmental decline should not be confused or misinterpreted as organizational decline. According to Cameron and Smart (1998), organizational decline is internal and is a condition in which the organization itself is in decline. Organizations facing environmental decline can maintain effectiveness and continue to operate successfully (Cameron & Smart, 1998). Environmental decline may in fact lead to organizational decline, but the two are mutually exclusive; an organization can face one or the other type of decline, neither type, or both.

A public higher education institution facing a decrease in state appropriations prototypically exemplifies an organization experiencing environmental decline. The circumstance that occurs to an institution is involuntary. The nature of eroding financial resources is environmental decline because this type of decline “happens *to* an organization; it is unintentional on the part of the organization or its managers” (Cameron, Freeman, & Mishra, 1993, p. 26). Environmental decline is an event that is measureable (Mone, McKinley, & Barker, 1998) and studies have used a 5% drop in revenue as a basis for classifying an organization as experiencing environmental decline (Cameron, Kim, & Whetten, 1987a; Cameron et al., 1987b). Organizations facing environmental decline experience a constriction in resources and may or may not face organizational decline.

This distinction between environmental decline and organization decline is necessary because it runs counter to the traditional way of studying organizations, which is based on growth and not decline. Whetten (1980) describes three common assumptions that undergird the bias towards growth in organizational models. The first assumption is that a positive relationship exists between the age of an organization and the size of the organization. That is, the older an organization is, the larger it should have grown during that time. This assumption leads to the concept that managing growth throughout maturity is a cornerstone of the organization. The second assumption is the notion that bigger really is better and that building and sustaining size is a goal and priority for organizations. The last assumption is that “growth is synonymous with effectiveness” (Whetten, 1980, p. 577). These assumptions are deeply entrenched organization behavior concepts and seem to be a natural ideology for organizations. Others (Cameron, 1994; Cameron et al., 1993) have affirmed that most models and frameworks established for studying organizations are based on principles related to organization size, striving for unending growth, and that flexibility and adaptability are products of size. All these assumptions are challenged, particularly in light of the economic climate since the difficulty of the early 1980s, by additional understanding that environmental decline is a natural phase of organizational development (Cameron, 1994; Cameron et al., 1993).

Models of Decline

Literature on organizational development focuses primarily on growth and expansion due to long standing assumptions about organizations. Literature on decline is limited, but some researchers have started to focus on environmental decline. Weitzel and Jonsson (1989) have developed a progressive model that outlines the stages an organization proceeds through

regarding decline, while Cameron and Zammuto (1983) have developed a typology to help identify the type of decline and the associated strategies to manage the decline conditions.

Weitzel and Jonsson (1989) developed a model of the stages of decline, based upon their synthesis of prior literature, if the organization fails to act. The model contains five distinct stages that organizations proceed through regarding decline if the organization does not take appropriate action to stop it from progressing through the model. The first stage is where an organization is blind to conditions of decline (Weitzel & Jonsson, 1989). The organization fails to anticipate or envision internal or external factors contributing to potential decline. The organization may not be seeking suitable market information or is under the assumption that behavior that was historically successful and effective is still the best course of action.

The second stage of the model from Weitzel & Jonsson (1989) is that of inaction. In this stage, the organization is aware of conditions of decline that are present, but action is not yet taken. The organization is not in immediate danger of not surviving, so action is delayed and, typically the current course is maintained.

The third of the five stages is that of faulty action. The organization has now evaluated the decline conditions, but takes actions that are not effective. The initial actions are faulty for any number of reasons including the incremental nature of adjustments. Incremental adjustments are minor actions that do not fully address the environmental condition, and these actions do not go far enough to alter the organization. Managers and leaders often tend to implement quick and rather shallow solutions in an attempt to offset decline in the shortest possible amount of time, rather than taking more drastic action (Weitzel & Jonsson, 1989).

Following the implementation of actions that are inadequate is the fourth stage in which the organization realizes the magnitude of the current condition. This point is the crises stage

(Weitzel & Jonsson, 1989). This type of decline condition is important because “it is possible for an organization to be catapulted by an environmental calamity into the fourth stage without progressing through some of the earlier stages” (Weitzel & Jonsson, 1989, p. 104). If the condition of decline is internal in nature, the organization will have more opportunities to address the circumstances. If the decline condition is of the external environment type, much like the state appropriations revenue stream for public higher education, then several stages of the model may be skipped. During this stage, leaders develop and implement new strategies and ideas and organization friction is more widespread (Weitzel & Jonsson, 1989).

If the organization has not taken suitable actions up to this point, the organization would enter into the final stage of the model. This last stage is the dissolution of the entity (Weitzel & Jonsson, 1989). The organization loses consumers, becomes ineffective, and internal conflict is high. An organization can exit the progression of the stages of decline if fitting actions are implemented. Weitzel and Jonsson do not discuss the specific actions necessary to counter decline conditions, however, Cameron and Zammuto (1983) have provided a framework to coordinate responses to decline which will be discussed next.

Cameron and Zammuto (1983) have developed a typology of decline, based on their research into the automobile industry, the tobacco industry, and higher education, designed to match managerial responses to the environmental decline condition an organization faces. The researchers note that it “became evident that characteristics of the external environment played a dominant role in determining successes and failures of managerial responses during periods of decline” (Cameron & Zammuto, 1983, p. 360) during different investigations into the U.S. automobile industry, the U.S. tobacco industry, and American higher education institutions. What is critical in the typology developed by Cameron and Zammuto (1983) is that their

typology is based solely on changes to the external environment of an organization. They make a very clear distinction that they “ignore the kinds of decline that result from mismanagement or mistakes in organizations, and instead consider only the kinds of decline that are induced environmentally” (p. 360). The current financial trends for public higher education match the assumptions that underlie the basis of the typology of decline intended to assist organizations in matching appropriate tactics to conditions of decline.

The typology of decline is based on the intersections of the type of niche change and type of environmental change happening to an organization. Two types of niche change and two types of environmental change are provided within the framework developed by Cameron and Zammuto (1983). The organization niche is the segment of the market in which the organization operates. The niche can either change in size or in shape. When a niche changes size, the organization's market is expanding or contracting. The emphasis of the typology is on decline, so the framework is based on a reduction in niche size due to an eroding external resource base (Cameron & Zammuto, 1983), much like a public higher education institution receiving a reduced share of state appropriations. The other type of niche change within the model is a change in niche shape. This alteration occurs when the market changes regarding the types of activities in which the organization will engage. “The most common reasons for changes in niche shape are changes in the types of products or services demanded by consumers and technological innovations that make past products and services obsolete” (Zammuto & Cameron, 1985, p. 229-230). The market “no longer supports the types of activities in which organizations have been engaged” (Cameron & Zammuto, 1983, p. 361) or the same demand no longer exists for the outputs of the organization.

The type of environmental change that happens to an organization can be either continuous or discontinuous change in environmental factors. “Continuous change represents relatively smooth change; change is largely uninterrupted, and past trends are good predictors of the future. Discontinuous change represents sudden change where the past is not a good predictor of the future” (Cameron & Zammuto, 1983, p. 363). Continuous decline can potentially be predicted and forecasted and may provide more opportunity for the organization to adapt. Discontinuous decline would occur only haphazardly or unexpectedly and the organization may have limited time to react.

Organizations that experience a change in niche size with continuous environmental decline encounter erosion (Cameron & Zammuto, 1983; Zammuto & Cameron, 1985). Erosion represents a steady, often anticipated gradual decline in resources but does not typically present an immediate threat to survival of the organization (Zammuto & Cameron, 1985). Adjustments of the organization will likely stress incremental changes; however, tactics to offset erosion should be proactive in nature (Cameron & Zammuto, 1983). “Proactive tactics attempt to anticipate environmental events and are implemented aggressively. Proactivity connotes taking the offensive” (p. 367).

Organizations that experience change in niche size with discontinuous environmental decline encounter contraction (Cameron & Zammuto, 1983; Zammuto & Cameron, 1985). Contraction is a sudden change in resource availability that does threaten the nature of the organizations ability to perform (Cameron & Zammuto, 1983). Contraction is immediate and can be unexpected which leaves the organization with little time for considerable planning and decision making. Tactics to offset contraction should be reactive in nature. “Reactive tactics are those implemented in direct response to a decline event, and not until it occurs” (Cameron &

Zammuto, 1983, p. 367). These reactive tactics are designed to protect the organizations survival until resource levels are restored and often can be considered temporary solutions in anticipation of the return of adequate environmental resources.

Organizations that experience change in niche shape with continuous environmental decline encounter dissolution (Cameron & Zammuto, 1983; Zammuto & Cameron, 1985). Dissolution is the gradual shift in organizations products and services from one niche to another. Organizations are dissolving outputs in an area that is no longer in demand for opportunities in another niche. These shifts are gradual as the organization searches for new alternatives and additional outputs and these organizational pursuits are likely to be central activities of the organization (Zammuto & Cameron, 1985). When experiencing dissolution, organizations should use enactive tactics. “Enactive tactics refer to instrumental activities that implement new kinds of managerial behaviors. Not only are new activities proposed, but also are enacted or implemented” (Cameron & Zammuto, 1983, p. 367). These tactics attempt to expand, create, or otherwise alter the core functions of the organization to offset gradual environmental decline.

Organizations that experience change in niche shape with discontinuous environmental decline encounter collapse (Cameron & Zammuto, 1983; Zammuto & Cameron, 1985). Collapse is both quick and significant. The niche shape of the organization experiences comprehensive alterations immediately where organization survival is a real consequence unless the organization makes the right manner of adjustments (Cameron & Zammuto, 1983). The organization most often looks to change to an entirely new market area and substitute new activities for old activities (Zammuto & Cameron, 1985). Tactics for organizations experiencing collapse should be experimental. “Experimental tactics are similar to trial-and-error actions

taken when no clear alternative or model is present. Tentative actions are taken without much validating information” (Cameron & Zammuto, 1983, p. 367).

Weitzel and Jonsson (1989) put forth a framework to identify the stages of decline that an organization may experience. If corrective action is not taken, an organization will progress through the blinded, inaction, faulty action, crises, and dissolution stages when faced with conditions of decline. Cameron and Zammuto (1983) establish a typology to match appropriate and effective tactics to the specific decline condition stemming from external environmental conditions. The types of tactics presented for organizations to cope with conditions of erosion, contraction, dissolution, and collapse are not the only way to be successful, but certainly offer organizations a framework to implement adjustments to prevent failure. Even when organizations successfully navigate environmental decline events, there are numerous consequences that stem from decline that impact the ability to operate.

Effect of Environmental Decline Conditions on Organizations

Numerous potential organizational responses stem from environmental conditions of decline. Environmental decline is an issue facing organizations with which management and participants must effectively manage (Whetten, 1980). An eroding financial resource base can have noteworthy consequences on the organization undergoing an environmental decline experience. The consequences of external decline can negatively impact the organization in a number of ways, but some outcomes may actually be positive in nature.

Cameron et al. (1987b) developed a set of twelve dysfunctional attributes associated with decline. Their purpose was to establish a set of characteristics universally discussed in order to provide a basis for empirical tests. The list of dysfunctional attributes of decline includes centralization, the lack of long-term planning, reduced innovation, scapegoating, change

resistance, employee turnover, low workplace morale, loss of slack resources, fragmented pluralism, loss of credibility, nonprioritized cuts, and rising internal conflict (Cameron et al., 1987b).

Centralization occurs when the decision making process is markedly controlled and very little participation is present. Long term planning is put aside in favor of short-term needs and dealing with crises. Innovation is reduced when constituents seek to avoid risk and experimentation. Scapegoating happens when leaders are blamed for the decline condition and other mistakes in the process. Along with scapegoating is the loss of credibility that leaders experience. As resources are constrained, organizations look to resist change and turnover is higher when the most competent employees look to leave first. The remaining employees experience low morale. Slack resources disappear due to the environmental decline and those resources, once used for new and innovative projects, are used to cover routine operating expenditures. Fragmented pluralism is when groups within the organization band together around special interests and become more vocal and protective of their own interests. Conflict arises among employees in the organization because of competition and reduced resources. Nonprioritized cuts occur in an attempt to evenly scale back resources, similar to across-the-board reductions. The nonprioritized nature is an attempt to improve and amend conflict by treating all groups equally (Cameron et al., 1987b).

In an empirical test that used the list of dysfunctional attributes, Cameron, et al. (1987b) surveyed 3,406 individuals from 334 higher education institutions. Of the 334 institutions, 127 institutions were public (38%) and 207 institutions were private (62%). Of the respondents, 1,317 were administrators, 1,162 were department heads, and 927 were trustees. The purpose of the study was to determine if the dysfunctional attributes were more widespread at institutions

facing decline conditions that institutions experiencing stability or growth. Based on interviews with 40 administrators, the researchers classified institutions experiencing at least a 5% inflation adjusted drop in revenue as declining, an increase of more than 5% as growing, and all others were classified as stable over the six year period studied (Cameron et al., 1987b). When comparing the three classifications using MANOVA, the researchers identified a statistically significant main effect among the three institutional groups and found that the most negative attributes were associated with declining institutions. The study also found that levels of dysfunctional attributes were not significantly different under decline and stability, but the attributes were statistically significant between institutions experiencing decline and those experiencing growth. The twelve attributes were associated with declining and stable institutions as opposed to institutions classified as growing (Cameron et al., 1987b).

In a separate study using the same dataset collected earlier, Cameron, Kim, and Whetten (1987a), used factor analysis to identify two factors related to the twelve attributes. One factor was management actions, which included centralized decision making, no long-term planning, across the board cuts, and turnover. The other factor was the organization member reactions group that included scapegoating, resisting change, decreasing morale, organizing special interest groups, increasing conflict, curtailing of innovation, and losing confidence in top management. They found that attributes linked to organization member reactions were significantly affected by decline conditions and top management actions were not (Cameron et al., 1987a). The finding indicates that management actions were not different under decline conditions than during normal conditions. However, employee reactions were different under decline conditions. Under conditions of environmental decline, the dysfunctional attributes

associated with organization member behavior will increase as an outcome to the decline circumstance.

Another potential outcome that several researchers have discussed is whether or not environmental decline conditions inhibit or stimulate organizational innovation and adaptation. Staw, Sandelands, and Dutton (1981) argue that a threat to the organization, like an eroding resource base, creates an atmosphere of rigidity. The model they developed of organizational response to threat leads to the restriction of information processing, the constriction of control, and the overall conservation of resources (Staw et al., 1981). These effects can extend across the individual level and the organizational level, thereby inducing an atmosphere that inhibits adaptation and innovation.

In testing a set of dysfunctional organizational attributes, Cameron et al. (1987a) found that organizations' member's actions such as curtailing of innovation was significantly affected by environmental decline conditions. In a study of New York City's experiences during and after a financial crisis in which eroding financial resources were the cause, Levine, Rubin, and Wolohojian (1982) found that oversight stemming from efficiency concerns suppressed initiatives. The city was not able to respond or adapt due to the decline conditions.

Several indications show that environmental decline inhibits innovation and adaptation within an organization. Alternatively, numerous studies also indicate that environmental decline can actually stimulate innovation. The decline condition can effectively drive an organization to seek new alternatives, revamp product lines, strive for efficiency gains, and reach out to other markets in an attempt to survive (Cameron & Zammuto, 1983; Miles & Cameron, 1982). In a study of 74 technology firms in the U.S., Bolton (1993) found that the likelihood of an organization to innovate was not rooted in internal characteristics of the organization as much as

it was based on substandard performance, such as environmental decline. In the case of the technology firms, the eroding financial resources drove organizations to be early adopters to collaboration and innovation (Bolton, 1993).

Researchers (Cameron, 1983; Staw et al., 1981; Whetten, 1981) who cite decline as an inhibitor to innovation discuss the tendency for organizations to constrict, behave conservatively and reduce risk-taking. However, Wiseman and Bromiley (1996) found in a study of food processing and manufacturing organizations that risk taking increased in those firms experiencing decline conditions. That is, risk taking is experimenting, implementing, and engaging in new and different behaviors. For the organizations in the study, the decline conditions spurred innovative behavior as opposed to inhibiting innovative behavior (Wiseman & Bromiley, 1996).

Response to conditions of environmental decline can affect the constituents' and stakeholders' perceptions of an organization, which can impact operational ability. Schick and Ponemon (1993) studied how decline conditions impacted external auditors' perceptions of audit risk. Audit risk is an indication of the external stakeholder's perspective about the stability and functioning of the organization. If external stakeholders have a negative outlook towards the organization and concerns about the direction the organization is headed, then those constituents may preemptively reduce support causing decline conditions to escalate more rapidly. In a sample of 127 organizations, Schick and Ponemon (1993) found that organizations facing a more rapid decline resulted in subsequently higher audit risk ratings. Environmental decline increases the perceived risk associated with the organization by external partners, stakeholders, and constituents.

To summarize, environmental decline occurs when organizations face an eroding resource base (Cameron et al., 1987a; Cameron et al., 1987b; Cameron et al., 1993; Cameron & Smart, 1998; Cameron & Zammuto, 1983; Mone et al., 1998, Schick & Ponemon, 1993; Wiseman & Bromiley, 1996). The model developed by Weitzel and Jonsson (1989) contains five stages of progression for an organization facing decline. If appropriate actions are not taken by the organization in response to environmental decline, the organization can ultimately progress through the five stages towards organizational failure. Cameron and Zammuto (1983) develop a framework for matching appropriate responses to conditions of decline based upon the type and frequency of environmental decline. Potential consequences of environmental decline include an organization developing characteristics determined to be dysfunctional (Cameron et al., 1987a; Cameron et al., 1987b). Decline conditions may act as an inhibitor to innovation and adaptation for the organization (Cameron et al., 1987a; Cameron et al., 1987b; Levine et al., 1982; Staw et al., 1981; Whetten 1981). According to other research, decline conditions may stimulate innovation and adaptation as organizations seek out ways to move forward (Bolton, 1993; Miles & Cameron, 1982; Wiseman & Bromiley, 1996). External partners and constituents may view organizations facing decline conditions as more risky (Schick & Ponemon, 1993). All of these matters make the strategies and tactics to adequately deal with decline conditions more important. The next section will focus on the strategies and tactics discussed in the literature available to counter environmental decline conditions.

Financial Management Strategies and Tactics

This section will provide a review of literature related to financial management strategies and tactics, beginning with a discussion of rational choice theory which provides underlying assumptions of the financial management response and resource allocation in higher education.

Following the discussion of resource allocation will be a review of empirical studies that focus on financial management strategies. Prior studies will be grouped into sections pertaining to higher education, local and state government, nonprofit organizations, and corporations. Prior research will be presented in chronological order with a summary following each sector.

Research related to the financial management of K-12 school systems will not be included because of the key difference in ability to adjust the revenue side of the finance model. When facing decline, K-12 systems have limited to no ability to raise revenue or seek alternate funding sources like organizations in higher education, state and local government entities, non-profit organizations, or corporations. This inability to balance funding needs by seeking revenue enhancements means K-12 relies solely on expenditure reduction as the primary strategy to offset fiscal strain, which is fundamentally different than entities discussed here.

The components of rational choice theory are well-suited for use as a basis for the underlying assumptions in the detailed study of institutional strategies implemented to counteract environmental decline, the. Rational choice theory, as a guiding element, considers “individuals as attempting to be rational” (Ostrom, 1991, p. 238) and to make choices based on the information at their disposal at the time decisions are made (Simon, 1955). Further, individuals face alternative options without knowing the specific outcome when choosing between alternatives (Simon, 1955) and desire to make choices that avoid negative consequences (Simon, 1956). According to Hechter and Kanazawa (1997), “based on the available information and their best estimates of what the future holds, actors assign subjective probabilities to various future states of the world and make their decisions according to these subjective probabilities” (p. 209). Options that have the maximum impact may not always be chosen, rather, choices that offer a sufficient enough solution with a lower possibility of negative consequence may be

selected (Simon, 1955). Simon (1956) adds that individuals choose “a path that will permit satisfaction at some specified level” (p. 136) to meet the end goal, instead of trying to rather arbitrarily make a choice that offers the maximum impact regardless of the consequences. Becker (1993) adds that individuals “try as best they can to anticipate the uncertain consequences of their actions” (p. 386), however, “actions are constrained by income, time, imperfect memory and calculating capacities, and other limited resources” (p. 386).

For purposes of the current study, the central components of rational choice theory may be useful in the interpretation of the findings concerning financial management strategies and tactics. Chief financial officers, whether acting selfishly or altruistically, can be reasonably expected to make rational decisions and choices in relation to helping their institution maintain fiscal stability. Due to their institutional role and responsibility, CFOs typically have significant time and experience invested in the process of maintaining and creating financially stable institutions. As such, careful consideration of the possible choices were likely undertaken using information available to CFOs at the time the institution was facing environmental decline. Simon (1956) noted that although the specific outcome may not be known at the time the decision is to be made, individuals want to avoid negative outcomes. Chief financial officers can be expected to choose strategies and tactics for implementation with considerable effort in avoiding negative consequences from constituents, as well as, from resultant loss of fiscal security. Further, CFOs may not necessarily select the strategies and tactics that provide maximum fiscal impact. Rather, selections of a group or combination of strategies and tactics across different strategy types may be implemented that have various levels of fiscal impact but that collectively meet a desired level of offset to counteract the environmental decline conditions. Certainly, closing or eliminating high cost programs would offer maximum fiscal impact, but the

combination of other, more moderately impactful strategies and tactics may meet the desired goal of the CFO without the potential for unwanted consequences.

Rational choice theory is utilized in the current study by providing the underlying basis for the assumptions regarding the output of the data that is collected from the study participants. Based on the framework and key components of rational choice theory, this lens provides a widely focused, macro-level theory to help analyze the results of the research questions. The data received from CFOs on the financial management response will represent the most rational decisions and choices that could have been made at the time institutions were selecting and implementing financial management strategies and tactics.

Resource Allocation

Resource allocation decisions are of greater significance during times of reduced or restricted resources. When resources are scarce, the allocation of those resources will be more critical and draw more concern from both internal and external constituents. Campus leaders' decision making during times of financial stress and budget scarcity lead to more scrutiny than usual (Ashar & Shapiro, 1990). Many researchers argue that resource allocation procedures in higher education are based on rational choice (Ashar & Shapiro, 1990; Rubin, 1977; Santos, 2007), while others view resource allocation based on other approaches (Hardy, 1988; Hardy, 1990; Kerlin & Dunlap, 1993; McElrath, 1992; Slaughter, 1993).

Ashar and Shapiro (1990) posited that during times of increased scrutiny, rational behavior will increase due to the need to have justification for decision making. "Rational decision making involves the articulation of goals, examination of alternatives and consequences, and selection of alternatives according to specified criteria" (Hardy, 1988, p. 155). The study conducted by Ashar and Shapiro (1990) included all forty departments within the

College of Arts and Sciences at a large, public research university in the northwestern part of the United States and was focused on the change in faculty size as a determinant of resource allocation. The institution was experiencing budget reductions and fiscal stress. Faculty positions were being reduced throughout the institution in light of the fiscal condition. Therefore, the change in faculty size was an indicator of resource allocation from executive leadership. The researchers used multiple regression to determine if rational choices were related to three indices based on productivity, centrality, and external support. The productivity index was the most indicative regarding change in size of faculty (Ashar & Shapiro, 1990). That is, the more productive the department, in terms of publications per faculty, presentations per faculty, student credit hours per faculty and other measures, the more institutional resources were allocated during times of fiscal stress. The argument from Ashar and Shapiro is that the findings reflected that rational decisions regarding resource allocation were made in their case study.

In another case study of five state universities undergoing financial difficulty, Rubin (1977) found that a reduction in financial resources did change the allocation process. In interviews with 25 higher level administrators and 25 academic department heads, they found that during the time of difficulty, the types and amounts of information used in decision making was increased. The new and varied information streams were then used in the decision making process (Rubin, 1977). This reliance on a multitude of data types and increased requests for new data that decisions were then based on suggested that a rational process was in place during resource allocation decisions.

In a study of 152 departments across 10 public research universities, Santos (2007) found that departmental quality indicators were associated with varying levels of allocated resources. The author concluded that when departments improved on academic quality according to

measures in place, more internal resources were subsequently allocated to them. The findings indicated rationality in decision making because these tangible factors played a role in the institutional allocation function. Resources were allocated based on the information available in terms of departmental quality measures rather than based on political, social or other factors.

While many studies approach resource allocation from a rational approach (Ashar & Shapiro, 1990; Rubin, 1977; Santos, 2007), others suggest that allocation decision making stems from some other approach based on power, influence, politics, or even gender and race. In a case study of a large public research university in Canada facing fiscal constraints, Hardy (1988) closely studied the resource allocation process designed by campus leaders that was intended to be rational in nature. Following across the board cuts, campus leaders wanted to determine new formulas that would allow them to be more selective in allocating scarce resources. Thirteen criteria centered on the three areas of teaching, graduate teaching, and research were identified (Hardy, 1988). Even though extensive planning and formulas were developed, budget allocations fluctuated across departments regardless of the criteria identified for the departments. Campus leaders also reinstated across the board cuts noting that ambiguity, complexity, and time involved to analyze the criteria were prohibitive factors to using the formulas (Hardy, 1988). In spite of the purposeful attempt to approach resource from a rational standpoint, other factors weighed heavier on allocation decisions. The rational approach ignored and underestimated the political context in which higher education allocation decisions are made (Hardy, 1988; Hardy, 1990). Other factors in allocation decisions can center on faculty prestige or ability to foster external relationships (Kerlin & Dunlap, 1993; Slaughter, 1993). Still other researchers have pointed out that gender can play a role in institutional resource allocation as well (McElrath, 1992).

Volk, Slaughter, and Thomas (2001) put resource allocation into two frames: rational/political and critical/political. This work integrated all measures of resource allocation. The rational/political frame is in effect when there is a small, core group of individuals making decisions based on functional assumptions and information. The critical/political frame involves a method of resource allocation based primarily on alternative characteristics like power, influence and gender. The frames both contain a political approach because political considerations are recognized to be centrally inherent within all decision making, particularly in public higher education. Volk et al. (2001) set out to determine which frame would best describe resource allocation at one public doctoral research institution. The authors used multiple independent variables related to both the rational/political and critical/political frames and studied all 70 departments, excluding the medical and law schools. The total state appropriated dollars to each department was the dependent variable, thus ensuring that extraneous funding types not controlled through central resource allocation procedures were excluded from influencing the results. The ordinary least-squares (OLS) regression supported neither model over the other in explaining resource allocation, and the authors suggested that both types of frames for resource allocation can be used within an institution. This finding could be the result of a large university having multiple underlying missions and resource allocation decisions being made using both rational/political and critical/political frames (Volk et al., 2001). Their findings “suggest that a rational/political interpretation works for some institutional missions and a critical/political models for others” (Volk et al., 2001, p. 398).

As environmental decline conditions begin to affect colleges and universities, resource allocation becomes more critical in light of the reduced financial support. These resource allocation decisions often are intended to be done in a rational manner based on substantial

amounts of information and very careful consideration of the consequences of any allocation decisions. Many researchers (Ashar & Shapiro, 1990; Rubin, 1977; Santos, 2007) have concluded that resource allocation decisions are done within a rational framework. Still other researchers (Hardy, 1988; Hardy, 1990; Kerlin & Dunlap, 1993; McElrath, 1992; Slaughter, 1993) have determined that allocation decisions are based on numerous factors. Volk et al. (2001) argued that neither frame is predominant and concedes that both types are not mutually exclusive and often are used in some combination with each other.

Higher Education Financial Management Studies

Limited empirical research exists concerning higher education financial management strategies. Prior studies have pertained to community college institutions (Novak, 2009; Riley, 1994; Scroggins, 1987), small private colleges (Chaffee, 1984; Morriss-Olson, 1995), or a mix of institutional types (Ganzert, 2000; Zachary, 1991). In addition, Garrett (2007) and Keller (2009) studied public four-year institutions. These studies concerning the financial management strategies and responses to fiscal decline will be reviewed here.

Chaffee (1984) empirically tested two models of strategic management utilized when institutions were faced with revenue decline: the adaptive model and the interpretive model. The adaptive model of strategic management is based on the premise that the organization is its own entity and has its own goals and actions. This model focuses on the flow of resources and involves changing and diversifying products and services, anticipating change in the market place, and creating additional financial resources through conservation of funds and managing expenditures. The interpretive model of strategic management is based on the premise that the organization is situated within a broader association of participants. This model focuses on organizational legitimacy, where legitimacy is the reason the organization operates, and involves

focus on developing concepts and communicating internally and externally to the organization. Fourteen institutions experiencing at least a 20% decline in total revenues, adjusted for inflation, from 1973 to 1976 were included in the study. Of this group, half made positive revenue recovery strides from 1976 to 1979 and the other half continued to experience declining revenues from 1976 to 1979. Of the 14 institutions, 12 were liberal arts and two were classified as comprehensive; nine of the fourteen were church-related institutions. Study methodology included in-depth interviews with multiple individuals at each institution, as well as data analysis of Higher Education General Information Survey (HEGIS) information, archival materials, published documents, and internal communications. Chaffee found that both groups of institutions, those that made positive recovery and those that did not make positive recovery, used the adaptive model. However, institutions in the group that made revenue recovery during that time also used factors of the interpretive model. Chaffee (1984) stated, "In summary, the results of these analyses suggest that the adaptive model of strategic management does not account for the fact that one group of colleges was more resilient than the other" (p. 228). The findings suggest that colleges employing successful management strategies to offset fiscal constraint will not only manage costs and revenues of the institution, but will also work to balance the organization within its network of participants with activities such as focusing on programs, showing initiative with external groups, and maintaining stable and cooperative actions with the organization.

Scroggins (1987) surveyed the chief executive officers at the 52 single campus community colleges in California to determine what strategies were administered to confront fiscal pressure from 1982 to 1984. Of particular interest was how the financial management strategies selected were derived from either efficiency or effectiveness-based concepts.

Efficiency-related strategies were reactive in nature and budget-related while effectiveness-based strategies were more proactive and include strategic planning and development. The survey contained 40 individual items that were classified into five categories: general administration, faculty and personnel, research and planning, business/accounting, and student services. Correlation findings indicated that colleges did not utilize one model distinctly; they chose strategies across models and made both efficiency and effectiveness-based strategy decisions.

In a study designed to gain understanding of how higher education institutions responded to reductions in budget availability, Zachary (1991) performed a case study of three public higher education systems in the state of Louisiana. For the fiscal years studied, 1984-85 to 1988-89, the Louisiana State University System, the Southern University System, and the state College and University System suffered a reduction in state appropriations of 8.7% on average for all systems. Budget statements were examined for the period included in the study in regards to all revenue funds and expenditures by type. Tuition and fee revenue was increased substantially to offset the loss in state funding (57.4% increase for the period), while expenditure items including travel costs, capital improvement, and library acquisitions were reduced to help balance the budget. Capital operations and maintenance was reduced by 50% for the period and shouldered the largest portion of the cost reductions. Limitations to the study included the small sample size and the restricted nature of the data analysis in that the only descriptive statistics calculated were the change in data for the years included.

Riley (1994) surveyed the presidents at twenty-three community colleges in Virginia to assess whether *Conventional* or *Innovative* strategies were used to respond to fiscal constraint. Strategies intended to solely increase revenue or decrease costs were considered *Conventional*, while strategies intended to move beyond efficiency only and change or reshape the institution

were considered *Innovative* by the researcher. The findings showed that both types of strategies were used. The descriptive study indicated that the most widely used *Conventional* revenue strategies were increasing fund-raising and development efforts followed by cultivating alternative funding sources. Reducing costs strategies included increasing adjunct faculty usage, deferring equipment purchases and maintenance, and reducing positions through attrition. The most widely used *Innovative* strategies were building partnerships with business, industry, and high schools; offering new courses that were in high demand; and allocating funds based on program need. A limitation of the study was the arbitrary nature in which strategies were predetermined as either *Conventional* or *Innovative*. Many strategies could have been classified differently based on the context of the practitioner.

Morriss-Olson (1995) studied small private denominational-based liberal arts colleges experiencing environmental decline. Decline conditions at the institutions studied were enrollment fluctuations, price competition, fund raising, and endowment earnings, all of which contributed to fiscal stress and an erosion of the overall revenue base. The study included the 82 North-American institutions that are members of the Christian College Coalition and sought to identify management strategies that lead to positive change in institutional viability despite the financial constraint conditions from 1981 to 1991. After performing financial information analysis to document the fiscal conditions, a survey instrument was used to explore the management strategies. Institutions were categorized as *Improving, Stable, and Declining*. Morriss-Olson found that institutions classified as *Declining* were more likely to employ retrenchment activities such as conserving resources through controlling costs, reducing programs, and implementing personnel cost savings measures. Those institutions also were more likely to lean heavily on enrollment planning and admissions strategies. The findings indicated

that the more pressure from fiscal conditions faced by the institution, the more focused and direct the management's response became because available unrestricted resources were no longer available. Institutions classified as *Improving* were more focused on institutional mission and purpose by using the mission statement to guide decision-making and course offerings, enhancing the quality of student life and student experience. Overall, the researcher found that all classifications of institutions employed multiple approaches. *Improving* institutions focused more on strategic approach strategies while *Declining* institutions focused more on operational issues. One limitation noted by the author was the difficulty and possible error in classifying institutions as *Improving, Stable, or Declining*. Incorrectly assigning institutions to a classification could cause findings to be inaccurate.

Ganzert (2000) studied the effects of financial stress, including responses by institutions to financial stress, by utilizing a multiple case study approach and an additional descriptive survey sent to a larger sample group of both public and private institutions. The case studies were conducted at a public state supported institution, a historically black university, a private denominational college, a private non-denominational university and a public government supported institution (Canadian). Data was gathered through interviews and document analysis at each site.

The case studies indicated that the public higher education institutions experienced fiscal stress from state funding reductions and faculty salary pressures (Ganzert, 2000). The severity and specific time frame of the fiscal stress was not indicated. Responses to these fiscal pressures included terminating staff, administering across-the-board cuts, increasing tuition, implementing early faculty retirement, and enhancing efforts for fundraising. Other responses, throughout all institutional types, included budget cuts to specific departments in addition to across-the-board

cuts, restructuring academic programs, freezing employee salaries, replacing high level administrators, and concentrating on strategic planning.

The second stage of the study included survey research of a stratified sample of 327 chief financial officers across institutional types. Of the 327 surveyed, 107 responded, for a response rate of 33.1%. Respondents were from public, private, and historically black universities. The breakdown by institutional type is not known and survey findings were only shown in aggregate and not classified by type. Of the respondents, 65.5% indicated that their institution had experienced financial stress within the previous five years. The most frequently indicated sources of financial stress were technology costs (including hardware, software and infrastructure), physical plant maintenance and repair, and faculty salaries. The most frequently indicated responses to offset financial stress were increasing external fundraising initiatives, increasing student recruitment, emphasizing strategic planning, focusing on internal efficiency, reducing discretionary spending, and increasing fees (Ganzert, 2000). Perhaps the greatest limitation to this study, as noted by Ganzert, was that the survey regarding fiscal stress was sent “during relatively good economic times” (p. 180), which could have had an impact on the severity and reported responses to fiscal pressure. The researcher also does not differentiate between institutional types which could misconstrue the survey results. Ganzert recommended that additional surveys *a propos* to financial stress should be sent out during poor economic times in order to more fully understand the institutional responses and the implications of those strategies.

Garrett (2007) examined how the influence of different sources of fiscal constraint influenced administrator’s selection of financial management strategies implemented to cope with fiscal constraint. A survey instrument was sent to the provosts, chief financial or business

officers, and academic deans at 438 Carnegie-classified public doctoral, research, and master's colleges with a total of 1,352 responses being received for inclusion in the study. Of the responders to the survey, 185 were chief financial officers and 183 were provosts. In addition, 984, or 72.78%, of the sample were academic deans across numerous fields. Descriptive analysis showed that all three administrator types agreed that the rising price of healthcare and utilities were the main source of any financial pressure at their institution. Administrators reported that their respective institution had "experienced minor cuts in state appropriations" but "this reduction was not found to be a major cause of financial pressure" (Garrett, 2007, p. 110-111). The relatively minor reductions in state appropriations caused limited fiscal constraint at the time the survey was administered, which is a limitation of the research.

The responses were grouped using factor analysis into eight response types across three categories of unconventional responses, conventional responses, and mix type responses. Unconventional responses focused on reshaping the institution and altering the market or boundary of operations. The response groups that the researcher placed in unconventional responses were innovative strategies, reducing activities, and increasing technology. Conventional responses were focused on reductions in cost and additions to revenue. The response groups that the researcher placed in conventional responses included reduce funding, reduce costs for instruction, and across-the-board funding issues. The mix-type response category included both revenue generation and partnership strategies, and reduce positions strategies. By using bivariate correlation conducted against the two constructs (source of fiscal pressure construct and response type construct), Garrett (2007) determined that more conventional strategies, those focused on reducing costs or increasing revenue, were more likely to be implemented when facing all types of financial pressure.

The study conducted by Garrett (2007) was administered during a period of time where state appropriations were relatively stable, as is indicated by administrators noting fiscal constraint due to state appropriations was minimal at the time. It is unknown how the findings would be different if the study were performed at a time of more financial volatility for public institutions of higher education. Another limitation, as noted by the researcher, was that the instrument was not designed to gauge how much financial pressure the various sources were in fact exerting on their institution.

Novak (2009) conducted a survey of public community college chief financial officers in order to study the rated effectiveness of specific financial management tactics used to meet institutional budget goals. Of 1,024 two-year public community colleges who were members of the 2007 American Association of Community Colleges (AACC), 321 responses were received for a total response rate of 31.3%. Interestingly, no fiscal management tactics were rated as very effective and only one out of 44 tactics was rated as not effective. The only tactic identified as not effective, with a low mean of 1.43 where 1 to 1.49 was *Not Effective*, was to cancel all summer sessions. Not surprisingly, increasing tuition and fees was rated the most effective tactic, followed by canceling course sections with low enrollment, increasing marketing efforts, canceling programs with low enrollment and increasing the number of online course. The study found that little to no difference existed between the financial management tactics effectiveness and the age, enrollment number, organizational structure, or rural, suburban, and urban classification of the institution. This study by Novak provided an indication that tactics designed to increase revenue or reduce costs were effective, but it is not known what tactics were implemented or the degree of fiscal impact of the tactic.

In a survey sponsored by the Association of Public and Land-Grant Universities, Keller (2009) documented the short-term and long-term strategies to cope with eroding state appropriations. The descriptive study divided the responses into two groups based on the level of state appropriation decrease. One group experienced a decrease in state appropriations of greater than or equal to 10%, and the other group experienced a decrease in state appropriations less than 10%. Of 188 members of the APLU, 87 responses were included in the study and represent 41 states plus the territory of Guam. The average enrollment for responding institutions were 23,000, and 73 of the 87 institutions were doctoral-granting research universities. Of the respondents, 90.8% increased tuition and required fees, but 50.1% reported that they still experienced a net decrease in total revenue even with the tuition increases. The most common short-term strategies were to utilize federal stimulus funds, reduce staff positions, reduce part-time and adjunct faculty positions, defer maintenance, and reduce purchasing activity. The most common long-term strategies included investments in implementing energy savings initiatives, increasing enrollment, and conducting strategic reviews of campus activities such as online education, support services, academic programs and research programs. When dividing the groups into level of appropriation decrease, those institutions with the largest loss in appropriated funds were much more likely to implement drastic strategies such as laying off permanent staff and eliminating course offerings. Of the respondents, 53.6% indicated that the fiscal outlook for the institution was either pessimistic or very pessimistic, which suggests that financial management strategies will continue to be of great concern for institutions.

Throughout the studies on financial management strategies in higher education to manage environmental decline, a common approach was to classify the strategies into two main groups and attempt to determine if one approach was used more heavily than the alternative.

Researchers performed statistical tests to determine if fiscal management strategies focused on methods that were adaptive or interpretive (Chaffee, 1984), focused on efficiency or effectiveness (Scroggins, 1987), conventional or innovative (Riley, 1994), and unconventional or conventional (Garrett, 2007). Those studies all found that institutions chose strategies across the classifications and did not focus on any one type of strategy regardless of the categorization scheme. The methodologies of studies that focused on higher education were similar. The majority of studies used a survey instrument (Ganzert, 2000; Garrett, 2007; Keller, 2009; Morriss-Olson, 1995; Novak, 2009; Riley, 1994; Scroggins, 1987), while some studies used interviews and or document analysis (Chaffee, 1984; Zachary, 1991). A common limitation throughout these studies was the lack of parameters to establish if and when an institution is undergoing fiscal stress. The shortcoming of not specifying a parameter to indicate environmental decline is that institutions may be included in the study that are not directly impacted by fiscal stress conditions.

Local and State Government Financial Management Studies

Prior studies on financial management strategies and responses to deteriorating fiscal conditions now will be reviewed for local and state governments due to the many similarities of the sector with that of higher education. Local and state governments share many characteristics with public higher education institutions regarding revenue structures. Both are heavily dependent on a revenue base that is beyond the control of leadership or management. Local and state governments' partial reliance on sales and income taxes, as well as property taxes, creates a condition where the revenue stream is susceptible to economic conditions and can fluctuate from year to year. While a portion of the revenue stream is beyond internal control for both sectors, there are sources of revenue that each can exert direct control. Local and state governments

often have the ability to manage and adjust user fees and property tax rates while higher education institutions can oversee fees, charges and tuition in most cases. Both sectors have limited ability and desire to reduce or eliminate services or programs. Government entities have the task of ensuring access to functions such as water and waste disposal services with little ability to eliminate or replace them. Higher education may be limited in reducing programs or staff by collective bargaining and tenure agreements.

Levine, Rubin, and Wolohojian (1981) studied four local governments to explore their hypothesis that a relationship exists between the degree and direction of resource change and the response. Their findings from these case studies indicate support for this hypothesis in that the responses were rational and structured such that the deeper and longer the anticipated decline, the more targeted and drastic the response. Of particular note, reversibility of response was also important in each case study which further supports the hypothesis. Reversibility refers to whether the response decision could be reversed in a later or subsequent period if decline conditions improved. Selling assets or eliminating programs had little or no reversibility and were implemented only when decline conditions were substantial.

Pammer (1990) put forth the theory that responses to fiscal constraint would be unstructured and follow no particular method or type (focus on revenue, focus on cost reduction, etc.). His model used regression analysis to determine any predictive capability that seven independent variables would have on the use of retrenchment strategies. The research included data on strategies for 120 cities that represented a range of population sizes over 25,000. The predictor variables were environmental decline, fiscal stress indicator, reformism, group pressure, mayor/council spending preference, administrator perceptions of financial problems, and administrative sophistication. The outcomes support the notion that the predictor variables

had little or no ability to indicate which strategy would be selected. The researcher asserted that the nature of responses was unstructured and that predicting what response a city would implement was, at best, difficult. The 120 participant cities were drawn from a larger study that sent questionnaires to all cities with populations over 25,000 regardless of any specificity concerning financial condition, thereby limiting the findings due to the lack of an established parameter to determine if a city was experiencing fiscal pressure or environmental decline.

Dommel and Rasey (1989) used case study analysis to look at the coping strategies of cities and counties in Ohio regarding the loss of general revenue sharing (GRS) funds. General revenue funds were started in 1972 and ended in 1986, were unrestricted in nature, and could be used for most any expenditure. The review of budgeting practices indicates that the GRS funds were typically budgeted directly to operating expenses, so the loss of these funds was substantial in nature because of the direct impact on available operating dollars. Three basic responses to the loss of federal funding were to cut spending, replace lost funds through new revenues like increasing taxes or implementing new fees, and implement a mixed strategy of cutting spending coupled with revenue enhancements. Of the 25 municipalities and counties included in the study, eight chose primarily spending cuts, 12 chose primarily revenue strategies, and five chose a mixture of the two activities.

Marando (1990) also studied the response to the loss of GRS funds in 153 cities spread across different states and regions with populations of at least 25,000. Data for the study was based on a survey administered by the National League of Cities in 1986, prior to the end of GRS funds and again in 1988, after GRS funding had ceased. Similar to the findings of Dommel and Rasey (1989), Marando (1990) found that cities either chose to raise revenues, reduce costs, or implement some combination of both. The most common revenue items cities chose to

implement were property tax increases and new fees. Cutting costs through reduced capital spending, reduction in staff and hiring freezes were the most commonly used cost control measures. An unpopular strategy, reducing service level and offerings, was only reported by 16% of the cities. Indications from the study point to the desire of the cities to respond to the fiscal decline by implementing a mix of methods that would allow for no reduction in core services.

In a study of local governments' response to a reduced funding base because of a cut in state aid from 1990 to 1992, Bartle (1996) explored how 61 cities in New York State reacted to environmental decline. Data was used from financial information obtained from the comptroller's office, followed by case studies of the nine cities experiencing dire financial conditions. Due to the unique characteristics of the City of New York, it was excluded from the study. Bartle determined that no uniform response to reduced state aid existed. Rather, multiple strategy types were implemented to counter the fiscal strain. In general terms for all cities, the average loss of aid was 5% of total expenditures, and most of the response focused on revenues, particularly increasing or adopting user fees. A popular expenditure-related strategy focused on reallocating resources from long-term capital projects to current spending. Bartle also classified groups of cities by the amount of state aid that was lost: 1) large aid cut group lost 7.5%; 2) moderate aid cut group lost 4.5%; and 3) small aid cut group lost 2.6%. Cities experiencing the smallest cuts increased revenues much faster than the other cities, and actually had a net positive increase in their cash balance reserves, while the other two classifications experienced net decreases in cash reserves. At the other end of the spectrum, the cities with the largest cuts relied more heavily on reallocating capital spending dollars and spending down any cash reserves available while also slightly increasing taxes and user fees. Those with the smallest

relative loss in state aid sought to rely more heavily on revenue increasing strategies, while those with the largest relative loss sought strategies focused on expenditure reduction.

In a survey of 119 municipalities in Wisconsin, Maher and Deller (2007) revealed five retrenchment strategy groups from the responses to fiscal stress indicated by the local governments. The survey included 20 retrenchment strategies for consideration, and the researchers used principle components analysis to group the strategies into categories. The five groups of strategies were: productivity improvements and alternative service delivery, increasing revenues, avoidance and deferring actions, service cuts, and spending reductions. A limitation of the study is that the municipalities surveyed may or may not have experienced real fiscal constraint. No parameter was established to indicate a decline event. Of the respondents, 53.5% indicated that they believe their revenues will be inadequate, while 46.5% responded that they had adequate revenues, implying that little fiscal constraint was present. Further, the survey asked respondents if they supported the strategy and was not specific to if the municipality had implemented the strategy. By not differentiating whether municipalities actually implemented the strategies or not, the ambiguity resulted in responses that indicated an inability to generalize the findings and may have provided responses that were not implemented or ineffective in nature to be reported as an actual response to a fiscal decline.

Dougherty and Klase (2009) studied the response to fiscal strain at the state level, where fiscal pressure was brought on by reductions in the revenue base. As state income via tax effort fell sharply during 2003 and 2004, states had deficit gaps in their budget that needed to be addressed. The case study approach included eight contiguous states: Delaware, Maryland, New Jersey, North Carolina, Ohio, Pennsylvania, Virginia, and West Virginia. The most common approaches were across-the-board cuts and personnel actions that included hiring freezes and not

filling vacant job openings. Six of the eight states made deeper, more targeted cuts and half of the states went a step further regarding personnel and implemented employee layoffs. New revenue creation was an important strategy as states created new revenue streams and increased revenue from existing sources (increase in tax rates or user fees) and searched for one time revenue increases (the sale of land or property). The researcher concludes that strategies become more drastic as the fiscal condition worsens. Initial response was to avoid or delay more difficult decisions in order to survive the current pressures. Tactics implemented were across-the-board cuts and hiring freezes. As fiscal conditions deteriorated, more complicated tactics were employed such as targeted cuts to more specific areas and more analytical and executive decision making was involved.

The studies on local and state governments regarding the response tactics to declining fiscal conditions share similar findings in some regards while opposing findings on others. Levine et al. (1981) established that the responses to fiscal constraint share a relationship to the level of fiscal decline in that the deeper the decline the more substantial the response and this was further supported by the findings of Dougherty and Klase (2009). Other researchers found that the responses selected to handle fiscal constraint followed no particular pattern regardless of the decline pressure (Bartle, 1996; Dommel & Rasey, 1989; Marando, 1990; Pammer, 1990). Overall, local and state governments chose to implement a mixed method of responses that cut across both revenue and expenditure strategy types without focusing on one over the other (Bartle 1996, Dommel & Rasey, 1989; Maher & Deller, 2007; Marando, 1990) and were averse to instituting policies that reduced or eliminated services (Levine et al., 1981; Marando, 1990). Most studies on local and state government response to fiscal decline failed to adequately identify a parameter for determining if an entity was facing environmental decline. This

condition weakened the findings because some of the results could have been based on groups that were in fact not experiencing fiscal constraint. Bartle (1996) went a step further and identified three groups based on the level of decline in revenue, with the smallest group being included that experienced at least a 2.6% reduction in revenue and this level of analysis was critical to identifying only those governmental entities experiencing environmental decline.

Nonprofit Financial Management Studies

Nonprofit organizations face similar environmental decline issues to those confronting higher education due to the nature of the revenue structure in which their operations are based. Nonprofit groups receive a substantial portion of their revenue from external constituents, such as private gifts and donations, along with funding from local, state, and federal sources. These groups have limited or no control over a critical portion of their revenue base, and as such, nonprofits remain susceptible to environmental decline conditions (Alexander, 2000; Bullinger, 1987; Combs, 1999; Golensky & Mulder, 2006; Liebschutz, 1992; McMurtry, Netting, & Kettner, 1991). Much like higher education, nonprofits offer services and programs for which fees can be assessed to customers and used to stabilize income, although these fees are limited since the customer base of most nonprofit organizations has a restricted ability to bear the cost of the service. Although unpopular, one key difference is the ability of nonprofit organizations to reduce, replace or eliminate programs and services rather easily while local governments and higher education are limited in doing so by certain factors. Those studies focusing on the strategies and tactics employed by nonprofit agencies to navigate fiscal pressures from environmental decline concerns will be reviewed here.

In a survey of nonprofit agencies in Tacoma-Pierce County (Washington state), Bullinger (1987) received questionnaire responses from 79 agencies regarding, among other descriptive

information, the responses to organizational stress due to environmental decline conditions. Seventy-seven agencies responded to the portion of the instrument designed to identify the strategies taken to cope with changes in the revenue base of each agency. Three categories of responses were studied that affected agency staff, management operations, and services or clients. The most common responses were found related to affecting agency staff and affecting management operations categories. The results indicate that agencies attempted to implement strategies that did not affect the constituent or client base until absolutely necessary. Increasing staff workload and reorganizing staff were the most common strategies at 43% and 41%, respectively. Unpopular responses were those that dealt with reduction in jobs or pay, as well as any reduction of services offered to the client base.

McMurtry, Netting, and Kettner (1991) received questionnaire responses regarding the strategies implemented to counter environmental decline from 198 human service type nonprofit agencies. These agencies responded that the most common strategies included seeking new revenue sources and increasing fundraising efforts. However, only 48.6% of those agencies seeking new revenue sources said the strategy met or exceeded the expected results. The strategies were grouped into five categories of strategies: increasing productivity, utilizing organizational slack, reducing service options, acquiring power over the task environment, and altering the organizational domain. Strategies to increase productivity were most popular while service cutbacks and changing the organizational domain were the least popular. A limitation of the study is that the agencies surveyed were not more specifically chosen in regards to a decline event. No standard was developed for use in selecting agencies facing fiscal constraint, therefore, all agencies surveyed were assumed to be facing fiscal constraint, which may or may not have been the case.

In a 1992 study, Liebschutz examined six nonprofit agencies in New York for their response to a reduction in federal funding. The agencies' fiscal decline was due to the cuts in federal funding following President Reagan's push to reduce federal assistance to many nonprofit services, rather than the federal government playing such a large role in terms of financial assistance. As the stated cause of fiscal constraint, the study was conducted over the eight years of the Reagan presidency, 1981 through 1988. All six of the nonprofit agencies selected relied on two primary sources of funding: the federal government and the United Way. Any reduction of funding from the federal government constituted a serious decline to the overall revenue base due to the dependence on those funds. Preliminary response to the loss of funding included "conceding to them" (Liebschutz, 1992, p. 369) where the agency essentially gave in and terminated programs, reduced staff, offered and provided fewer services. When the agencies were revisited in 1988, all were still in operation and had been managing the decline primarily by seeking out new partnerships, which is in essence a broadening or diversifying of the revenue base.

Combs (1999) studied nonprofit organizations that dealt with disabled sports programs. Disabled sports organizations have three general revenue streams and receive funding from governmental sources, sales and services rendered, and private donations and contributions. Such external funding sources make these organizations particularly susceptible to environmental decline. The study included multiple data sources consisting primarily of interviews, publications, and historical documentation from the eight organizations selected. Combs placed the organizations into two groups based on size. The larger organizations enacted more revenue enhancing strategies and looked to additional revenue for resource strategies.

Organizations that were smaller were most dependent on cutting costs. The indication was that the larger the organization, the more resources it could devote to cultivating revenue.

Alexander (2000) studied nonprofit human service organizations in Cuyahoga County (which includes the city of Cleveland), Ohio, and the adaptation strategies adopted to cope with a declining resource base. Longitudinal focus groups consisting of 56 participants from 48 different nonprofit organizations were included in the study. The researcher found that four main adaptation strategies emerged from the focus groups when all transcripts were analyzed. The four adaptation strategies that the nonprofit organizations used were to pursue strategic expansion, to develop business management techniques, to increase networking activities (including linking to other related groups and networking related to funding opportunities), and to increase commercialization while maintaining a focus on the core mission.

In a study of 112 nonprofit human service organizations across California, Michigan, and North Carolina, Golensky and Mulder (2006) used a survey instrument to identify strategies used by management in response to changing external environments. They hypothesized that the choice of strategy would differ by geographical location. The potential strategies on the survey were grouped into four types, two which focused on internal actions and two which focused on external actions. The internal actions were *Productivity Improvement* and *Retrenchment*, while the external actions were *New Revenue* and *Transformational*. *Transformational* strategies changed or redirected the goal or mission of the organization by altering programs or adjusting services. Concerning *Retrenchment* strategies, increasing staff workload was the most widely used strategy, and no other strategy was widely supported. *New Revenue* strategies were used more frequently than *Transformational* strategies and included seeking new donors and starting new services (commercialization). Regression and correlation analysis were used to determine if

geographic location, program activity type, or chief executive's tenure would have any predictive value for the choice of strategy. None of these variables had any significant relationship to the choice of strategy. The year the organization was founded was of significance to strategy choice, but the researchers indicate that the low R-square level of .029 showed little explanatory use.

Responses to eroding fiscal conditions in the nonprofit sector highlight some important findings. In terms of the most common and popular strategies, many studies indicate that increasing productivity among the staff was central to the agencies' plans to face fiscal constraint (Bullinger, 1987; Golenksy et al., 2006; McMurtry et al., 1991). These tactics were designed to change efficiency levels by increasing staff and volunteer workloads, as well as the reorganizing of tasks and duties. Findings were conflicting regarding reducing or eliminating programs and services as a response to financial difficulty. Some studies indicate that nonprofit organizations desired to avoid reducing services, and that these strategies were unpopular (Bullinger, 1987; McMurtry et al., 1991), while some researchers found that these strategies were an early and common response to fiscal decline (Golensky et al., 2006; Liebschutz, 1992). Combs (1999) found that the larger organizations, in terms of size and fiscal capacity, showed a greater focus on revenue strategies to offset fiscal decline, while smaller organizations focused on expenditures and cost cuttings as their primary means to manage the decline.

Corporate Financial Management Studies

Financial management studies in the corporate setting must be carefully selected to differentiate between decline conditions caused by environmental factors outside the direct control of management and decline conditions caused by internal failures. Internal failures include such activity as poor management or mismanagement, bad strategic decisions, or loss of market share from outdated or bad products and service offerings (Cameron & Zammuto, 1983).

Studies that focus on corporate responses to fiscal constraint and decline will be reviewed here and are relevant to higher education as many business practices from the for-profit sector are often implemented in higher education.

For corporations, the return on investment (ROI) is a common measure of company performance and financial strength. ROI is the return or earnings figure evaluated in conjunction with the resources expended to earn those new dollars. ROI is calculated by dividing the earnings by the cost of the investment to obtain the percentage. A certain level of ROI is frequently used to identify fiscal stress for corporate studies. The use of a parameter to identify specific companies facing decline is a strength of this group of studies, unlike the typical higher education, government, and nonprofit studies which did a poor job overall of identifying groups facing decline. However, a key weakness in using ROI is that it can be subject to relatively easy manipulation through accounting changes, adjustments, and timing concerns, as well as managerial strategy, to influence ROI results (Chowdhury & Lang, 1993; Morrow, Johnson, & Busenitz, 2004).

Using ordinary least-squares regression to identify the strategic changes associated with improved performance and cluster analysis to determine groups of strategies, Hambrick and Schecter (1983) studied 260 mature industrial-product businesses that experienced a decline event. A decline was determined to be two consecutive years with a pre-tax ROI of under 10%, which was less than the cost of capital. Cost of capital is the expected earnings rate for other investments with the same level of risk. In other words, the company is earning less money when putting funds back into their own work than could be earned from other investments with the same risk level. The sample group included businesses that had performance improvements and those businesses that did not have performance improvements. With ROI change as the

dependent variable, the research indicates that efficiency related strategies, such as cutting costs, marketing, receivables and inventory, while improving employee productivity, were important in the rate of improvement in ROI after a decline event. Cluster analysis points to three successful turnaround strategy groups: asset and cost reduction concerns, selective product and market adaptations, and piecemeal productivity tactics. Piecemeal tactics are those individual initiatives that are implemented that are not part of a comprehensive or unified approach. The main limitation of this study, as recognized by the authors, was that the cause of the decline was not known. There is no clear indication of whether the source of fiscal pressure was due to internal or external issues, but the findings are important to include because they are based on the companies that experienced positive performance improvements after implementing certain strategies.

Robbins and Pearce (1992) studied 38 textile firms in the United States that experienced both a decline and a recovery from 1976 to 1985, according to financial statement examinations. A survey instrument was mailed to four corporate officers at each company and responses were received from at least two of the officers for each company included in the study. The study classified retrenchment in terms of cost retrenchment or asset retrenchment where cost retrenchment was considered the overall net reduction in cost while asset retrenchment was the reduction in short or long-term assets including receivables, cash, property and equipment. The three hypotheses of interest were that 1) the degree of retrenchment would be positively related to the level of the turnaround, 2) the focus of the response would be different according to the severity of the decline, and 3) the more closely related the response was to the decline problem, the higher the subsequent performance would be. The researchers found that the level of retrenchment, defined as the net reduction in costs or assets, had a statistically significant

relationship with turnaround performance. Firms were cut into groups of those that retrenched and those that did not. The companies that reduced costs or assets achieved a return on investment (ROI) of 9.75% versus companies that did not retrench (nonretrenchers) of 1.39%. For the second hypothesis, firms were categorized into high and low severity groups. Asset retrenchment was significantly correlated with turnaround situations for those companies in the high severity group. That is, performing asset retrenchment was important to the success of those companies. The third hypothesis split the companies into groups that saw the source of decline as either external or internal. Firms that believed their decline conditions were internal chose to use more efficiency-based strategies while firms that believed external forces caused the decline sought more entrepreneurial solutions.

In response to Robbins and Pearce (1992), Barker and Mone (1994) used the same 38 textile firms for their study in order to determine if firms that retrenched would have lower performance than nonretrenchers in years after the decline. Barker and Mone hypothesized that the ROI returns indicated in the Robbins and Pearce (1992) study were used out of context and that the ROI was higher for retrenchers because of the change in the base performance from the reduction of assets. Barker and Mone (1994) used ROI performance, to determine if retrenchers or nonretrenchers performed better following a decline. Using financial data from the Compustat database for the 38 firms, t-tests and means comparisons of the actual financial performance showed that those firms that did retrench had lower absolute performance than those firms that did not retrench (nonretrenchers), for the four years following the largest decline. This finding lead to the researchers' conclusion that retrenchment, through the reduction of costs or assets, was not the main driver of turnaround success but, rather, that particular retrenchment actions and how they were implemented were of greater concern.

Building on the retrenchment types discussed by prior researchers (Robbins & Pearce, 1992; Barker & Mone, 1994). Morrow et al. (2004) tested the performance effect of cost retrenchment and asset retrenchment at companies experiencing decline conditions that were operating within the context of a growth industry or a declining industry. Morrow et al. included 253 firms across 111 different industry types in their study, whereas most other studies concerned only one industry type. The data was extracted from the Compustat database for all firms included in the study. The firms included had to have experienced three consecutive years of decline performance (based on ROI) followed by at least two successive years of performance increases. Using regression analysis, the researchers found that asset retrenchment was positively related to performance improvement for companies in growth industries, while cost retrenchment was positively related to performance improvement for companies in declining industries. These findings support the assertion by Robbins and Pearce (1992) that retrenchment is a successful factor in turnaround performance. However, industry-wide characteristics should be evaluated prior to selecting a retrenchment strategy (Morrow et al., 2004).

Chowdhury and Lang (1993) studied 153 small, publicly-traded manufacturing firms facing decline conditions (as defined by average pre-tax ROI for 1984 and 1985 below the cost of capital). Financial data for the study was extracted from the Dialog Information Services' Disclosure database. To eliminate firms of varying types and to control for industry differences, all firms were classified as engaged in primarily one of the following manufacturing classification codes: chemical and allied products, machinery, electrical and electronic machinery, or measuring instruments. Small firms were classified as having less than 500 employees and up to 20 million in sales. For firms included in the study, Chowdhury and Lang found that the severity of the decline was related to the success of the turnaround and that the

more severe the decline, the more successful the turnaround. The researchers concluded that this finding is attributed to slow, gradual decline that does not necessarily trigger fast and effective corrective action, while firms experiencing more of a crisis situation were impelled to take action immediately. This finding is in opposition of Staw et al.'s (1981) concerns that decline increases conservativeness and stifles innovation. Chowdhury and Lang (1993) also found that firms that increased their debt-to-equity ratios (increased debt) were more successful and had greater instances of turnaround performance.

Extending the study using the same sample population from the 1993 study, Chowdhury and Lang (1996) performed logistic regression and univariate t-tests to determine which strategies were associated with positive short term performance following decline and which strategies were not. Independent variables in the study were efficiency strategies; those tactics that involved cutting costs and reducing assets; and entrepreneurial strategies, which are those tactics that sought to generate new revenue. Efficiency strategies were significant positive indicators of short-term turnaround performance with three actions being key: improving employee productivity, disposing of assets, and delaying accounts payable. Entrepreneurial strategies, those of growth and seeking increased revenues, were not statistically significant to positive turnaround performance. Of all the strategies included, employee productivity increases were the most significant predictor of turnaround performance.

Retrenchment in the form of asset or cost reductions was closely aligned to successful financial turnaround performance in many studies (Chowdhury & Lang, 1996; Morrow et al., 2004; Robbins & Pearce, 1992), but those findings were disputed by the findings of Barker and Mone (1994). The corporate response to fiscal decline, as generally measured by some level of ROI, was focused on efficiency concerns as a primary response with particular insistence on

employee productivity measures (Chowdhury & Lang, 1996; Hambrick & Schecter, 1983). Generating new revenue through entrepreneurial activities was a popular and successful strategy to offset environmental decline for corporations as well (Chowdhury & Lang, 1996; Robbins & Pearce, 1992).

Specific Financial Management Strategies

Prior studies have attempted to categorize financial management strategies across a multitude of classifications but ultimately determined that the selection of strategies cuts across classification types and falls into a mixture of revenue increasing and expenditure reduction approaches (Bartle, 1996; Chaffee, 1984; Dommel & Rasey, 1989; Garrett, 2007; Maher & Deller, 2007; Marando, 1990; Riley, 1994; Scroggins, 1987). It appears that a singular type of strategy approach to fiscal constraint is not reasonable and that institutions and organizations select any number of responses across all strategy types. Studies have had conflicting findings as to whether responses are related to the amount of fiscal pressure (Dougherty & Klase, 2009; Keller, 2009; Levine et al., 1981; Morriss-Olson, 1995) or if strategies are selected in an unstructured and piecemeal way in order to survive the decline conditions (Bartle, 1996; Dommel & Rasey, 1989; Marando, 1990; Pammer, 1990). Appendix A contains a list of specific financial management strategies and tactics as compiled from prior research studies. The strategies and tactics have been grouped by five constructs as follows: course and enrollment management, expenditure control, operational efficiency, personnel, and revenue enhancement.

The five strategy constructs were created from the central themes throughout the existing research on the response to conditions of fiscal constraint and erosion across different sectors including higher education, local and state government, nonprofit firms, and corporate entities. An overarching discovery found across numerous studies is that the response to fiscal constraint

is not limited to one particular type, but rather a combination of differing activities (Chaffee, 1984; Dommel & Rasey, 1989; Garrett, 2007; Marando, 1990; Riley, 1994; Scroggins, 1987). The recurring themes related to these different types of strategies in the fiscal response literature centered around the product management of the organization (Bullinger, 1987; Keller, 2009; Liebschutz, 1992; Morriss-Olson, 1995; Riley, 1994), specifically course and enrollment management for higher education. Controlling costs and reducing expenditures is a core type of strategy found to be widely-used by many researchers (Chaffee, 1984; Dommel & Rasey, 1989; Ganzert, 2000; Garrett, 2007; Morriss-Olson, 1995; Zachary, 1991). Reliance on improving the efficiency of operations was also a type of strategy found throughout the literature on financial management (Bullinger, 1987; Chaffee, 1984; Golenksy et al., 2006; Maher & Deller, 2007; McMurtry et al., 1991; Riley, 1994). Activities focused on organizational personnel, a high profile strategy type because it is rooted directly in employee well-being and behavior, has long been used to offset fiscal constraint (Dougherty & Klase, 2009; Ganzert, 2000; Garrett, 2007; Riley, 1994; Scroggins, 1987). The last major theme in terms of type of strategy that could possibly be used to respond to eroding fiscal conditions was revenue enhancement type activities (Bartle, 1996; Chaffee, 1984; Dommel & Rasey, 1989; Dougherty & Klase, 2009; Ganzert, 2000; Garrett, 2007; Golenksy et al. 2006; Maher & Deller, 2007; Marando, 1990; Riley, 1994; Scroggins, 1987; Zachary, 1991). With these central themes identified, the individual tactics derived from the prior studies on financial management were organized according to which strategy type was the most appropriate group, according to the researcher, in which to classify the activity.

CHAPTER III:

METHODOLOGY

Introduction and Overall Research Approach

The primary objective of this research study was to investigate the financial strategies and tactics public four-year institutions have implemented in response to fiscal constraint stemming from a significant reduction in state appropriations during the most recent economic downturn. Specifically, the study concentrated on the institutional response in fiscal year 2009, which was the first year of widespread reductions in financial support from state appropriations supplied to public institutions. This allowed for extensive research into the first decline event that would have caused action to be taken by certain public institutions that experienced a significant reduction in state appropriations. Prior research findings indicate that the strategies and tactics implemented to offset fiscal erosion become more drastic as fiscal conditions worsen or continue in subsequent years (Dougherty & Klase, 2009). The current study explored the strategies and tactics employed to offset decline during the first significant decline event. As the current study is researching significant decline experienced at a point in time, as opposed to over a period of time, it will not be known if the strategies and tactics became more extreme or drastic if fiscal erosion conditions continued beyond fiscal year 2009. A study exploring the fiscal response over a period of time to examine specific characteristics of the intensity of financial management tactics may be valuable in the future, but is principally disparate from the current study.

The information gained from conducting this study informed public constituents and policymakers of institutional activities taking place as a result of deteriorating public support for public higher education. Further, future economic trends for higher education are bleak (Longanecker, 2006) indicating that institutions not currently impacted from eroding financial resources will be affected by similar conditions in the future. Knowledge gained from this study provides a robust account of financial strategies and tactics that could aid other institutions in managing volatile revenue patterns. This chapter will outline the methodology, beginning with the research approach, followed by the research questions, the theoretical framework, the study population, participants, data collection methods, instrumentation for the study, ethical and security considerations, and the statistical and data analysis techniques.

The epistemological position of positivism is employed for this research study. The positivist understanding of the nature of knowledge is “that there is a real world ‘out there’ and that it is available for study through scientific means similar to those that were developed in the physical sciences” (Gall, Gall, & Borg, 2005, p. 14). This “real world” can be investigated through quantitative research methods in order to gather data and information that will be used to understand the reality that exists (Gall et al., 2005). The overall research approach followed in this study, which is a method used by positivists, is survey-based research that utilized descriptive and quantitative analysis of the data collected to answer the research questions. According to Gall, Gall, and Borg (2005), “the purpose of descriptive research is to make careful, highly detailed observations of educational phenomena” (p. 3) and descriptive research “involves describing characteristics of a particular sample of individuals” (Gall, Gall, & Borg, 2007, p. 298). Descriptive research should be utilized when “the intent is to study phenomena as they exist at one point in time” (Gall, Gall, & Borg, 2007, p. 299). One form of descriptive

research is survey research (Gall, Gall, & Borg, 2005) and “survey research is well suited to descriptive studies” (Muijs, 2007, p. 36). According to Creswell (2009), “survey research provides a quantitative description of trends, attitudes, or opinions of a population” (p. 12) and can be “cross-sectional, with the data collected at one point in time” (p. 146) or “longitudinal, with data collected over time” (p. 146). The current study is cross-sectional and, therefore, collected survey responses only once. Further, the study also employed inferential statistics. According to Gall, Gall, and Borg (2005), “inferential statistics enable researchers to make inferences about a population based on the descriptive statistics that are calculated on data from a sample that represents this population” (p. 162).

Intent and Research Questions

The intent of this study was to gain an understanding of the institutional financial management strategies and tactics being implemented at public four-year institutions in response to the erosion of state appropriations. Research questions are as follows. Among CFOs at public four-year institutions that experienced a decrease in state appropriations of at least 5% from 2008 to 2009:

1. What financial management strategies and tactics have been most and least implemented;
2. Which financial management strategies and tactics were rated as having the most and least fiscal impact;
3. What financial management strategies and tactics have been most implemented and rated as having the most fiscal impact based on enrollment size;

4. What channels of information were rated as most influential for CFOs in knowing and understanding which financial management strategies and tactics to implement;
5. Among CFOs at public four-year institutions responding to environmental decline conditions, what guided the selection of financial management response;
6. Were the financial management strategies and tactics implemented at public four-year institutions that experienced a decrease in state appropriations of at least 5% from 2008 to 2009 considered to have satisfied the desired level of fiscal stability of the CFO;
7. What are the psychometric properties of the survey instrument designed to capture the financial management strategy types implemented by CFOs at public four-year institutions that experienced a decrease in state appropriations of at least 5% from 2008 to 2009; and
8. Is there a difference in the pattern of financial management strategy types, determined from exploratory factor analysis, implemented by CFOs at public four-year institutions that experienced a decrease in state appropriations of at least 5% from 2008 to 2009 based on enrollment size?

Study Population and Participants

In order to identify the public four-year institutions that experienced a reduction of at least 5% in state appropriations revenue from 2008 to 2009, data on state appropriations to public four-year institutions were extracted from the National Center for Education Statistics Integrated Postsecondary Education Data System (IPEDS) Data Center. Using the data tool that allows for downloading custom selected data files, information from publicly released data was

downloaded into Microsoft Excel® with institutional characteristics and state appropriations data. All public four-year and above institutions were included in the download by selecting the IPEDS sector of “public, four-year or above”. Additionally, institutional characteristics extracted for each institution for use in analysis were: historically black college or university (HBCU) status, land-grant institution status, enrollment size, and Carnegie Classification according to the 2005 Basic classification method, which was collapsed into broader institutional types of bachelors, masters, and doctoral institutions. Flagship status was determined by mirroring the institutions used by Haycock, Lynch, and Engle (2010) in their work on flagship institutions. Enrollment size was determined based on the IPEDS enrollment size characteristic. Also included in the data extraction were financial data including the 2007-2008 state appropriations, and the 2008-2009 state appropriations. Additional formulas were added to the data file in order to compute the total dollar reduction of state appropriations and to compute the percent of state appropriation decline. Institutions with a decline in state appropriations greater than 5% were retained as the institutional study population.

A total of 173 public, four-year institutions, out of a total of 584, experienced at least a 5% loss in state appropriations from 2008 to 2009. State appropriation reductions ranged from a 5.06% decline to a 35% decline, and the average loss in state appropriations for the population group was a 14.40% reduction. In terms of total dollars, state appropriations reductions ranged from \$136,763 to \$120,745,000. The average reduction in state appropriations per institution was \$17,347,122. As a group, the 173 public, four-year institutions experienced a reduction in state appropriations totaling \$3,001,052,041. The geographic regions used in this study are in accordance with the U.S. Census defined regions: Midwest, Northeast, South, and West (U.S. Census Bureau, 2010). The colleges and universities matching the study criteria are listed in

Appendix B. Table 2 presents additional information on the study population that meet the 5% loss of state appropriation threshold for inclusion to the current study.

Table 2

Summary of Population by Region, Enrollment Size, Institutional Status, Classification, and Rate of Decline

Characteristic	Institutions	Characteristic	Institutions
Region		Classification	
Midwest	18	Bachelor's	23
Northeast	28	Master's	87
South	78	Doctoral	63
West	49	Total	173
Total	173		
Enrollment Size		Decline Rate	
0 - 9,999	76	5% - 9.99%	79
10,000 - 19,999	40	10% - 19.99%	49
20,000 and above	57	20% or above	45
Total	173	Total	173
Status		Status	
HBCU	14	Land-grant	26
Non HBCU	159	Non Land-grant	147
Total	173	Total	173
Status			
Flagship	16		
Non Flagship	157		
Total	173		

Chief financial officers serving at those institutions identified as undergoing environmental decline due to erosion in state appropriations from 2008 to 2009 serve as the participant population for the current study. As discussed extensively in Chapter II, CFOs perform a wide range of institutional duties and are involved directly in the implementation and decision-making process for ensuring that their institutions maintain fiscal stability. As such, the

chief financial officer is well-suited to provide both accurate and critical information regarding the financial management strategies and tactics implemented on their respective campuses.

Data Collection

An online survey served as the method for data collection of the present study. The survey instrument was administered via the internet through the online survey software Qualtrics.[®] Sue and Ritter (2007) discuss several issues to consider when determining the most appropriate circumstances in which to use survey research. Online survey research is particularly best suited when the population of interest is “widely distributed geographically” (Sue & Ritter, 2007, p. 5). Internet-based survey research allows for quick and efficient data collection time, and further, online surveys allow for protections of confidentiality (Sue & Ritter, 2007). Perhaps one of the main concerns with online survey research is the study participant’s access and ability to complete an online survey. Further, online surveys are best suited for populations that have and are familiar with e-mail and internet applications (Sue & Ritter, 2007). Whereas the current study is designed to draw information from chief financial officers at public four-year institutions, this population is well matched for online survey research due to the general familiarity and astuteness of the group concerning both personal computer skills and comfort with using online applications and tools.

Contact information for the chief financial officers for the institutions selected for inclusion in the study was gathered from multiple sources including online staff directories and web pages for institutions. The database of email addresses was used to send invitations to participate in the survey to the CFOs. The unique web address of the online survey was included in the preliminary email outlining the study purpose and inviting the CFO to complete the survey. After a period of two weeks, a follow-up email was sent to those CFOs who have not yet

responded. Following an additional two-week period, four weeks total from the initial survey invitation, an additional email was sent to non-responders with a reminder regarding the online survey. Lastly, a final email was sent to those CFOs that have not yet completed the online survey indicating the last date that the online survey was active and available for submission. This structure allowed for each potential respondent to have sufficient time to complete the survey according to his or her schedule.

Instrumentation

The online survey for the current study contained items that collected demographic and institutional characteristics, as well as data concerning the implementation of specific financial management strategies and tactics. In addition, a Likert scale system was utilized to measure the implementation decision and fiscal impact of each tactic. Further, other Likert scales were used to assess additional questions in order to examine the perceived degree that the combination of tactics fulfilled the desired level of fiscal stability and the importance of information channels that CFOs use to learn about, understand, and influence the selection of financial management strategies and tactics that were implemented. Respondents were asked to rank which overarching approach best guided the reason for the selection of tactics implemented, as well as, asked to identify what channels of information were considered to be most influential in knowing and understanding the tactics available to implement. The survey instrument is located in Appendix G. The instrument contains 50 tactics that were incorporated into five theoretical strategy types described thoroughly in Chapter II as follows:

1. Course and Enrollment Management;
2. Expenditure Control;
3. Operational Efficiency;

4. Personnel; and
5. Revenue Enhancement.

The individual tactics appear to the survey respondents in random order and there is no indication to the respondents which tactic fits within each strategy type. Randomizing of the tactics helped offset the potential for survey fatigue, a condition where respondents may not evaluate items at the end of the survey as closely as they do items at the beginning due to the process of taking the survey. Appendix A details the individual tactics included on the research instrument and the corresponding strategy type to which the tactic belongs. The 50 tactics were derived from instrumentation and results of prior studies on financial management response.

The researcher predetermined the strategy type constructs from prior research and analysis of the domain of financial management tactics within higher education, non-profit, local and state government, and corporate research as discussed thoroughly in the prior chapter. The Course and Enrollment Management strategy type contains tactics related to course and enrollment management such as eliminating courses and programs, collapsing courses into larger sections, increasing the student/faculty ratio, and limiting or increasing enrollment. The Expenditure Control strategy type contains tactics that seek to reduce or otherwise mitigate expenditures. Tactics that attempt to use institutional resources more efficiently and attempt a more streamline approach are in the Operational Efficiency strategy type. Tactics directly related to employees, such as the number of positions at an institution, salary and wage freezes, laying-off of employees fall in the Personnel strategy type. Revenue Enhancement is the fifth strategy type included in the study and encompasses tactics that seek to enhance or generate new or additional revenue.

The scores obtained on each strategy type were the dependent variables for the study.

Institutional characteristics consist of the size of the loss of state appropriations, enrollment size, geographic region, institutional level, and flagship, HBCU, or land-grant status. For the inferential statistics related research questions, the independent variable is the institutional enrollment size. The Likert scale to measure the tactic implementation and fiscal impact is as follows:

0. Not Implemented;
1. Implemented, with negative fiscal impact;
2. Implemented, with no fiscal impact;
3. Implemented, with positive low fiscal impact;
4. Implemented, with positive moderate fiscal impact; and
5. Implemented, with positive high fiscal impact.

Respondents first identified the demographic and institutional characteristics that were appropriate for their institution. Each CFO responding to the survey assessed if the listed financial management tactic was implemented on their respective campus and they also assessed the fiscal impact with regards to the implemented tactics.

As with any research, validity is a concern that must be addressed. Validity is the extent to which the data collection method is in fact answering the intended questions set forth by the researcher (Sue & Ritter, 2007). Validity “refers to the appropriateness, meaningfulness, and usefulness of the specific inferences made from the test scores” (Standards for Educational and Psychological Testing, 1985, p. 9). According to *Standards*, traditional categories of evidence of validity would include *construct-related evidence of validity and content-related evidence of validity*. The current study utilized a survey-based instrument that used a single item to measure

each concept, a common practice in questionnaire-based methods, which reinforces *construct-related* evidence of validity by maintaining a specific measurement for each specific concept. In order to ensure appropriate *content-related* evidence of validity, financial management tactics selected for inclusion on the survey instrument were derived from prior research on financial management response. Tactics were selected from prior studies related to higher education, local and state government, and nonprofits.

Additionally, the online survey instrument for the current study was pilot tested with professionals working in finance and business administration within public higher education with a range of education, including doctoral degrees, and a range of experience in higher education finance of up to 40 years. Members of the pilot test group were both practitioners and academic scholars who have investigated finance within higher education. As part of the pilot testing process, respondents were asked to specifically evaluate the tactics on the survey instrument for both breadth and depth to determine if the domain of financial management responses had been appropriately covered. Results from the pilot test provided opportunity for the research instrument to be modified and improvements to be made in the clarification of questions, answers, layout, and technical functioning of the instrument. Pilot testers indicated that the clarity of each question on the survey was exceptional and the intended purpose of each question was effortlessly understood by the respondent. Feedback from the pilot group did result in providing additional instructions on the question related to ranking the overall approach to strategy and tactic implementation in order to more accurately distinguish it from the question related to identifying which channel of information was most influential to the CFO in knowing and understanding which tactics to implement. Further, pilot testers confirmed that the answer choices and rating scales for each question were appropriate and provided a range of options

sufficient for a CFO to accurately record their response relative to each individual institutions circumstance. Pilot testers also indicated that the list of individual tactics did provide a comprehensive set of items that could encompass the financial management response of a CFO for an institution. No additional tactics were recommended to be included on the survey instrument, however, some tactics were given additional details or examples to more precisely describe the tactic. For example, the tactic for increasing fees was further clarified by detailing the type of fee was a non-academic fee such as parking or food service fees.

According to Gall, Gall, and Borg (2007), pilot testing allows a researcher “to develop and try out data-collection methods and other procedures” (p. 41). Pilot testing allows for a thorough review and correction process to be managed prior to moving forward with the research instrument. Preliminary review of the survey instrument provides a method to reduce validity concerns and assures the researcher that the instrument for this study is measuring the financial management strategies and tactics implemented on campuses of public four-year institutions experiencing environmental decline. In addition to evaluating the specific content of the survey instrument, respondents also provided feedback and information relative to the clarity and appropriateness of each question and response scale. The pilot testing process provided a means to assure evidence of validity was present for the instrument developed for the current study.

Reliability of the measurement tool is also of concern for the proposed study. Exploratory factor analysis was run on the individual tactics to determine what items are correlated and belong grouped together in factors based on the statistical output. Exploratory factor analysis “provides a tool for consolidating variables” (Tabachnick & Fidell, 2007, p. 609) and allows for validation of the survey instrument constructs. However, due to the small population, the dataset produced only a limited number of responses which may not allow for

correlations to be reliably estimated and may be a limitation of the study. In order to further evaluate internal consistency for the constructs, communality was analyzed prior to reaching conclusions on the dataset to determine how closely related the tactics are to the underlying strategy type. This allowed the researcher additional confidence that the tactics grouped to each strategy type are appropriately related. Also, the pilot testing process allowed for a review of the clarity of the questions and answer choices available in order to ensure a confidence in the stability of the measurement, where individuals should understand and interpret the survey items in uniform terms. Further limiting and offsetting the concern of reliability and validity for the study, survey instruments allow for well-structured and specific measurements to be recorded and are favorable to high levels of accuracy (Gall, Gall, & Borg, 2007).

Ethical and Security Considerations

A number of ethical considerations were carefully addressed when performing the current research study. Approval from the Institutional Review Board of The University of Alabama was sought regarding the data collection procedures and methods prior to the administration of the survey. Appendix C contains the approval documentation from the Institutional Review Board. Each respondent was provided information concerning the present study's purpose and informed consent was obtained prior to respondents participating in the survey through the use of the Qualtrics® online survey software. Participation was strictly voluntary, and respondents were allowed to terminate participation in the survey at any time. Respondents were asked to answer truthfully and honestly and were assured that no identifying characteristics were used in the study to ensure confidentiality. Personally identifying data was not used in data analysis and is not included in any part of the present research study. The researcher did not report data on individual institutions and only addressed research at the aggregate level.

Collected and analyzed data was securely stored and maintained via the use of password protected recordkeeping measures. The Qualtrics® survey software is password protected and maintained on a secure server that limits and controls access to the data instrument and data results. Further, any data analysis and data files were stored on flash memory devices that are also password protected. No data was stored on network or shared file systems where access may be available to others. When not in use for research, the flash memory devices were stored in a locked cabinet to further safeguard the data.

Statistical and Data Analysis

Following the period of time for CFOs to complete the online survey instrument in Qualtrics®, the survey was disabled and no longer accessible. Data collected from the survey respondents was exported to SPSS® and Microsoft Excel® for data analysis. The 50 individual tactics on the survey, administered in random order, have been predetermined to belong to five different strategy types. Appendix A details the tactic, the strategy type, and prior research that included the individual tactic for analysis.

In order to answer research question 1, frequency and percentage statistics were computed to address which strategy types and tactics were most and least implemented. Data analysis for research question 1 included both item analysis and construct analysis. Item analysis was done in order to determine which individual tactics were most and least implemented. Construct analysis was done by analyzing aggregate data for all individual tactics that make up each strategy type. This analysis allowed for the most and least implemented strategy types to be identified by evaluating the count and rank of implemented tactics. To investigate the strategies and tactics rated as having the highest and lowest fiscal impact, research question 2 was addressed by calculating the mean and standard deviation for the reported items from the survey.

Analysis for research question 2 also included individual item analysis, as well as construct analysis in order to view results at both the individual tactic level and at the overall strategy type level. The responses were re-coded in order to record a mean score from the Likert scale related to fiscal impact and ranked from highest to lowest for both the individual tactic and the strategy type. The answer choices of *Not Implemented* was excluded, and *Implemented, with No Fiscal Impact* was re-coded to 0, followed with the other answer choices being coded 1 to 4, where 4 is *Implemented, with High Fiscal Impact*. In order to answer research question 3, cross-tabulation results of the descriptive analysis regarding the most implemented strategy types was done to analyze the implementation of tactics by certain institutional characteristics. Research questions 4, 5, and 6, those questions related to the approach that guided financial management response, the most influential channels of information in knowing about and understanding tactics to implement, and how well the financial management response achieved the desired level of satisfaction, were answered using descriptive statistics reporting the mean scores for the survey responses. Frequency, percentage statistics, and distribution were also computed to further assess questions 4, 5, and 6.

Research question 7 is related directly to testing the psychometric properties of the survey instrument designed to capture responses related to financial management strategies and tactics implemented to counter erosion in state appropriations. Exploratory factor analysis, discussed extensively earlier in this chapter in the section on instrumentation, was used to consolidate individual tactics into groups based on statistical outputs (Tabachnick & Fidell, 2007), rather than based strictly on researcher interpretation of the theoretical constructs. This statistical testing allowed for additional analysis in order to determine appropriateness of the researcher defined strategy types. Communality scores, also discussed earlier, were calculated to

test for dimensionality of the constructs and to determine how closely the tactics grouped within each strategy types are interrelated. Additionally, research question 8 employed inferential statistics through profile analysis, which is a repeated measures approach to a multivariate analysis of variance (MANOVA) statistical technique (Tabachnick & Fidell, 2007). Profile analysis can be used when multiple dependent variables are measured on the same scale, and when each dependent variable score has the same meaning across different measures (Tabachnick & Fidell, 2007). The dependent variables in the current study are the scores on the strategy types, which were derived from the implementation and fiscal impact rating of the individual financial management tactics. For the current study, this holds true in that each of the five strategy types will have an associated score when the survey answers have been coded, and the associated score for each strategy type has the same measurement standard across types. For research question 8, related to the implementation of strategy types, each individual tactic within the construct were re-coded to a score of 0 if the tactic was not implemented, and 1 if the tactic was implemented, regardless of the fiscal impact. That score represents the dependent variable and allow for profile analysis statistical techniques to determine if a different combination of financial management strategy types were implemented across institutions with small, medium, or large enrollments.

Tactics not included in the statistical strategy types based on exploratory factor analysis testing were removed, and the remaining scores were converted to Z-scores to allow for a uniform scoring scale to be used even if the number of tactics in each construct is no longer equal. This repeated measures approach allowed for insight into the mean differences and statistical significance of differences among multiple groups of dependent variables and allows for interpretation of “whether groups have different profiles on a set of measures” (Tabachnick &

Fidell, 2007, p. 312). The ability to measure and interpret multiple dependent variables is a component of profile analysis that other statistical techniques, such as analysis of variance (ANOVA), are not able to perform (Tabachnick & Fidell, 2007). Prior research has used profile analysis when exploring similar questions regarding differences among groups on a set of dependent variables. Kaufman (1994) used profile analysis for research related to the Wechsler Intelligence Scale for Children to determine if differences in groups existed and Rangaswamy et al. (2002) conducted profile analysis to examine differences in groups of alcoholics. Although both research teams were exploring topics other than financial management response, each were investigating concepts similar to the proposed study.

Profile analysis allowed for examination into the combination of strategy types implemented by different institutional size categories to determine if small, medium, or large institutions, as measured by enrollment size, had to rely differently on some strategy types. For example, did small institutions rely more heavily on a combination of expenditure control and operational efficiency strategies where large institutions relied more heavily on revenue enhancement strategies? For purposes of this study, small institutions are those with enrollments of 0 to 9,999 and medium institutions are those with enrollments of 10,000 to 19,999 students. Large institutions are considered those institutions with enrollments greater than 20,000. Enrollment size is appropriate to use as an independent variable based on numerous prior studies that indicate that enrollment size, often also discussed as institution size, is a significant factor in the operational concerns for institutions. Kezar (2001; 2006) synthesizes many studies that indicate that institutional size does matter in a wide range of issues. Baldridge, Curtis, Ecker, and Riley (1973) detail findings related to the difference that small, medium and large institutional sizes have on faculty autonomy, while Brinkman and Leslie (1986) discuss how

institutional size matters with regards to all types of expenditures. Leslie and Ramey (1986) found that enrollment size and state appropriations are empirically linked and Bolman and Deal (1991) address that institutions of differing size and structure must utilize different approaches. In order to categorize institutions for this study into small, medium, and large institutions, IPEDs enrollment size categories were replicated. Since data for appropriations and other institutional characteristics were downloaded from the IPEDs database, institutional size measurements for this study were established similarly to the reporting categories that exist within IPEDs.

Summary

The financing of public higher education is a complex issue of concern to both public and private constituents. The losses of state appropriation revenue for many institutions have created a condition of eroding financial resources which is an environmental decline condition that must be carefully navigated. The present study seeks to explore the financial management strategies and tactics that public four-year institutions facing environmental decline have implemented. This chapter presented the methodological decisions which guide the current study. The overall research approach was discussed first which was followed by the intent of the study and specific research questions. After a review of the theoretical framework, the study population, participant group, data collection procedures, instrumentation, ethical and security considerations, and statistical and data analysis steps were discussed.

CHAPTER IV:

ANALYSIS OF THE DATA

Introduction and Description of the Sample

This chapter presents the results of the data analyses from the survey responses.

Addressed first is the population of the study and a summary of the demographics of the survey respondents, followed by a thorough review of the data as it pertains specifically to each research question. The primary purpose of this study was to gain an understanding of the institutional financial management strategies and tactics being developed and implemented at public four-year institutions in response to the erosion of state appropriations as a key component to the revenue base. The intent was to investigate, through a survey response instrument, the strategies and tactics put in place to aid colleges and universities in sustaining their financial well-being while maintaining pursuit of institutional missions. Further, the researcher attempted to determine differences in the selection and implementation of financial management strategies and tactics based on size, as measured by enrollment population, of the institutions included in the study.

As discussed in detail throughout the methodology, the total study population included 173 public four-year institutions that experienced a 5%, or greater, loss in state appropriations from 2008 to 2009. Data were collected on 75 institutions via survey responses from chief financial and business officers at the campus which experienced significant losses in revenue from state appropriated funds. Responses were analyzed for demographic characteristics including geographic region, institutional classification, enrollment size, and institutional status.

Table 3

Summary of Response Rates for Institutions by Region, Enrollment Size, Classification, and Institutional Status

Characteristic	N	n	%	Characteristic	N	n	%
Region							
Midwest	18	7	39%	Bachelor's	23	4	17%
Northeast	28	11	39%	Master's	87	26	30%
South	78	42	54%	Doctoral	63	43	68%
West	49	15	31%	Total	173	73	42%
Total	173	75	43%				
Enrollment Size							
0 - 9,999	76	28	37%	Flagship	16	15	94%
10,000 - 19,999	40	19	48%	HBCU	14	9	64%
20,000 and above	57	28	49%	Land-Grant	26	18	69%
Total	173	75	43%				

Response and non-response analysis indicates that the propensity of responding to the survey instrument was relatively even across different institutional characteristics, thus diminishing the opportunity of the sample population to be influenced by any nonresponse bias. Across regions, response rates for each group ranged from 30.61% in the West to 53.85% in the South. Chi-Square analysis was performed on the response rates for region, enrollment size, and institutional type to verify that the observed frequencies met the expected frequencies (Tabachnik & Fidell, 2007). For region, there was not a statistical difference in the study sample and the population, $\chi^2 (3, N = 75) = 4, p = .261$. When examined by enrollment size, response rates were 36.84% for the smallest category of enrollment, 47.50% for the medium category of enrollment, and 49.12% for the largest category of enrollment. For enrollment size, there was not a statistical difference in the study sample and the population, $\chi^2 (2, N = 75) = 1.34, p = .512$. Enrollment size was used as the independent variable of interest to answer research question eight. Limited responses were returned for the Baccalaureate institutional type. However, any

nonresponse bias was limited by not focusing on institutional type as an independent variable of interest for any research questions or data analysis. For institutional type, there was a statistical difference in the study sample and the population, $X^2 (2, N = 73) = 16.61, p = 0$. The survey contained questions to capture the respondents' job title and background characteristics. The items recorded in this section of the instrument were analyzed to determine if the survey was completed by appropriate institutional personnel as desired by the researcher's attempt to survey chief financial or business officers. Respondents, although having a variety of official job titles, were determined to be the chief financial or business officer of the institution invited to participate in the study.

Examining the data file for data accuracy concerns was addressed by utilizing multiple techniques, which ensured that the data file used for analysis accurately represented the CFOs response to the survey instrument. First, by administering the online survey through Qualtrics,[®] responses were captured electronically, and the data file was not created manually by the researcher. Second, additional data accuracy concerns were addressed by validating randomly selected records from the electronic data file against the corresponding original submitted survey from the respondent. Further, descriptive statistics were examined through SPSS to verify that the data file contained identical records to the output file produced by Qualtrics[®]. All values of the data file were within the valid range appropriate for each measure on the survey instrument.

Analysis was also performed to identify any missing data and to determine the degree and characterization of the missing data. Each of the 75 respondents was presented 50 questions related to tactic implementation, for a total of 3,750 total data records. Out of a possible 3,750 records, there were only 25 missing data points. Close analysis of the data file indicates that these missing items are characterized as "missing completely at random" (Tabachnick & Fidell,

2007, p. 62). For purposes of this research, descriptive statistical analysis was performed on the data set without imputation for missing data. Imputation of missing data was performed in order to analyze inferential statistics needed to answer research questions seven and eight. In those cases, imputation was performed by replacing the missing data with the mode of the instance where the missing data occurred (Tabachnick & Fidell, 2007). Replacing missing data with the mode was the most appropriate solution for imputation because the inferential statistical analysis is concerned with the implementation status, not the relative fiscal impact score. Because enrollment size was the variable of interest, imputation was based on other records sharing the same categorical variable.

Results

Research Question One

Among CFOs at public four-year institutions that experienced a decrease in state appropriations of at least 5% from 2008 to 2009, what financial management strategies and tactics have been most and least implemented?

Data for the study population was compiled in a Microsoft Excel[®] file and examined for the tactics that have been most and least implemented, regardless of the fiscal impact. Calculations to determine the frequency that each tactic was reported as implemented were performed in order to determine those tactics most and least often selected by institutions. Increasing student tuition and fees was the most commonly implemented tactic with 72 of 74 CFOs responding, with one non-response, that their institution did increase tuition to help offset the loss of state appropriations. In contrast, borrowing funds for either the short-term or long-term period was the least likely tactic to be implemented.

Table 4

Summary of Most Implemented Tactics

	# Implemented	n	% Implemented
Increase student tuition and fees (academic related fees)	72	74	97.30%
Initiate targeted cuts	70	75	93.33%
Invest in energy savings and efficiency measures	70	75	93.33%
Increase fund-raising and development efforts	69	75	92.00%
Use long-range strategic planning for management of budgetary constraints	64	75	85.33%
Reduce/restrict operating funds	62	73	84.93%
Emphasize teamwork across the departments to accomplish institutional objectives	63	75	84.00%
Reduced faculty/staff through nonreplacement	61	75	81.33%
Faculty/staff salary freeze	59	75	78.67%
Utilize federal stimulus funds	58	75	77.33%

Table 5

Summary of Least Implemented Tactics

	# Implemented	n	% Implemented
Long-term borrowing	5	75	6.67%
Short-term borrowing	5	74	6.76%
Limit institutional enrollment	9	75	12.00%
Reduce number or amount of scholarships	9	75	12.00%
Institute growth by substitution rather than by addition	10	74	13.51%
Request that donors allow restricted gifts to be used for other purposes	10	74	13.51%
Reduce financial commitment to athletic activities	11	75	14.67%
Implement TQM	11	73	15.07%
Provide program delivery primarily based on cost	13	75	17.33%
Outsource operations and services previously provided internally	18	75	24.00%

Construct analysis was also performed to determine which strategy types were most and least commonly used as financial management response to offset the loss of state appropriations from 2008 to 2009. CFOs responded that controlling and restricting expenditures was the most frequently used strategy type, followed very closely by personnel related tactics. Course and Enrollment Management tactics were the least implemented type overall, with only 42.61% of the tactics being implemented.

Table 6

Summary of Reliance of Strategy Type

Strategy Type	# of Times Implemented	Total	Construct %
Expenditure Control	451	746	60.46%
Personnel	443	745	59.46%
Operational Efficiency	401	746	53.75%
Revenue Enhancement	380	744	51.08%
Course & Enrollment Management	317	744	42.61%

Research Question Two

Among CFOs at public four-year institutions that experienced a decrease in state appropriations of at least 5% from 2008 to 2009, which financial management strategies and tactics were rated as having the most and least fiscal impact?

While research question one was concerned solely on the implementation of different financial management tactics, research question two was intended to determine the relative fiscal impact for those tactics that the CFO indicated were implemented at their respective institution. Increasing student tuition and fees was rated as having the most fiscal impact of all the tactics when implemented. Twenty-nine CFOs responded that increasing student tuition and fees had high fiscal impact, and an additional 38 CFOs responded that increasing student tuition and fees was implemented with moderate fiscal impact. No CFOs indicated that implementing increases in student tuition and fees had negative or no fiscal impact on their campus financial situation. Of those tactics identified as being implemented, requesting that donors allow restricted gifts to be used for other purposes was considered to be the least fiscally impactful tactic and was not rated as having moderate or high impact in any of the cases where implemented. Six CFOs indicated the tactic had low fiscal impact, two indicated it had no fiscal impact, and two others

reported that the tactic had negative fiscal impact for their institution. In order to rank these for distribution purposes, a mean score was calculated for each tactic that was implemented. Table 7 details the tactics rated as having the most fiscal impact and Table 8 details the implemented tactics considered to have the least fiscal impact. Table 9 provides a full listing of fiscal impact ratings for all tactics.

Table 7

Fiscal Impact Rating Distribution of Tactics Considered Most Fiscally Impactful

Tactic	Number of Responses for Each Item Implemented			
	Low Fiscal Impact	Moderate Fiscal Impact	High Fiscal Impact	Total Responses
Increase student tuition and fees (academic related fees)	5	38	29	74
Utilize federal stimulus funds (in FY09, not FY10 or FY11)	11	14	26	75
Mandate faculty/staff furloughs	7	7	10	75
Faculty/staff salary freeze	16	20	18	75
Differential tuition for expensive programs	9	15	5	74
Increase institutional enrollment	20	18	14	75
Utilize long-term borrowing	1	1	2	75
Limit institutional enrollment	2	4	2	75
Increase enrollment in specific areas	14	16	12	75
Initiate targeted cuts	21	32	13	75

Table 8

Fiscal Impact Rating Distribution of Tactics Considered Least Fiscally Impactful

Tactic	Number of Responses for Each Item Implemented			
	Low Fiscal Impact	Moderate Fiscal Impact	High Fiscal Impact	Total Responses
Request that donors allow restricted gifts to be used for othe	6	0	0	74
Provide program delivery primarily based on cost	6	1	0	75
Institute growth by substitution rather than addition	6	1	0	74
Reduce funding for student life activities	14	5	0	75
Emphasize teamwork across departments to accomplish insti	28	11	4	75
Eliminate courses	14	10	0	74
Apply break-even analysis to programs	10	5	1	75
Implement TQM	7	2	0	73
Utilize short-term borrowing	0	3	0	74
Increase reliance on technology in teaching and learning	24	15	3	75

Table 9

Distribution of Fiscal Impact Rating for Individual Tactics, Grouped by Strategy Type

Tactic	Strategy Type	Not Implemented	Number of Responses for Each Item					Responses
			Imp., with Neg. Fiscal Impact	Imp., with No Fiscal Impact	Imp., with Low Fiscal Impact	Imp., with Mod. Fiscal Impact	Imp., with High Fiscal Impact	
Increase institutional enrollment	Course & Enrollment Mgmt	21	0	2	20	18	14	75
Limit institutional enrollment	Course & Enrollment Mgmt	66	0	1	2	4	2	75
Increase enrollment in specific areas	Course & Enrollment Mgmt	28	0	5	14	16	12	75
Increase student/faculty ratio	Course & Enrollment Mgmt	33	1	1	20	16	3	74
Increase enrollments in selected programs	Course & Enrollment Mgmt	25	0	6	20	19	4	74
Reduce number or amount of scholarships	Course & Enrollment Mgmt	66	1	0	5	1	2	75
Collapse course sections into fewer, larger sections	Course & Enrollment Mgmt	35	1	1	23	11	2	73
Eliminate programs	Course & Enrollment Mgmt	47	1	2	17	7	0	74
Eliminate courses	Course & Enrollment Mgmt	44	4	2	14	10	0	74
Provide program delivery primarily based on cost	Course & Enrollment Mgmt	62	1	5	6	1	0	75
Initiate targeted cuts	Expenditure Control	5	2	2	21	32	13	75
Initiate across-the-board cuts	Expenditure Control	40	4	1	8	12	10	75
Reduce or restrict operating funds	Expenditure Control	11	2	2	27	22	9	73
Allocate funds primarily based on program needs	Expenditure Control	19	3	5	23	19	6	75
Reduce financial commitment to athletic activities	Expenditure Control	64	0	1	7	2	1	75
Reduce funding available for professional development and travel	Expenditure Control	19	4	0	33	15	4	75
Defer equipment purchases	Expenditure Control	20	3	3	29	15	4	74
Reduce funding and staffing for library services and student services	Expenditure Control	42	2	1	20	8	1	74
Defer maintenance	Expenditure Control	23	9	1	21	17	4	75
Reduce funding for student life activities	Expenditure Control	52	2	2	14	5	0	75
Invest in energy savings and efficiency measures	Operational Efficiency	5	0	2	28	27	13	75
Use long-range strategic planning for management and budgeting	Operational Efficiency	11	2	11	23	21	8	76
Outsource operations and services previously provided internally	Operational Efficiency	57	0	1	12	3	2	75
Re-engineer work tasks	Operational Efficiency	23	0	6	31	12	2	74
Reduce and/or modify the scope of activities of the institution	Operational Efficiency	38	2	1	24	10	0	75
Increase reliance on technology in teaching and learning	Operational Efficiency	21	3	9	24	15	3	75
Apply break-even analysis to programs	Operational Efficiency	52	0	7	10	5	1	75
Implement TQM	Operational Efficiency	62	0	2	7	2	0	73
Emphasize teamwork across depts to accomplish institutional obj.	Operational Efficiency	12	1	19	28	11	4	75
Institute growth by substitution rather than addition	Operational Efficiency	64	0	3	6	1	0	74
Mandate faculty/staff furloughs	Personnel	49	0	2	7	7	10	75
Faculty/staff salary freeze	Personnel	16	0	5	16	20	18	75
Initiate a hiring freeze	Personnel	28	1	2	14	20	8	73
Reduce number of administrative positions	Personnel	19	3	0	20	22	11	75
Reduce permanent staff positions	Personnel	20	2	2	19	21	11	75
Reduced faculty/staff through nonreplacement	Personnel	14	1	3	22	24	11	75
Lay-off personnel	Personnel	32	2	1	15	17	8	75
Increase the number of adjunct faculty	Personnel	31	0	3	19	18	3	74
Reduce number of faculty	Personnel	43	3	2	10	11	4	73
Implement or enhance an early or phased retirement program	Personnel	50	3	2	7	9	4	75
Increase student tuition and fees (academic related fees)	Revenue Enhancement	2	0	0	5	38	29	74
Utilize federal stimulus funds (in FY09, not FY10 or FY11)	Revenue Enhancement	17	1	6	11	14	26	75
Differential tuition for expensive programs	Revenue Enhancement	45	0	0	9	15	5	74
Utilize long-term borrowing	Revenue Enhancement	70	0	1	1	1	2	75
Utilize new funding sources or revenue streams	Revenue Enhancement	22	0	2	28	22	2	76
Increase incidental fees (non-academic related: i.e. parking fees)	Revenue Enhancement	25	0	1	31	16	2	75
Increase use of restricted funds	Revenue Enhancement	44	1	4	12	11	1	73
Increase fund-raising and development efforts	Revenue Enhancement	6	1	13	34	19	2	75
Utilize short-term borrowing	Revenue Enhancement	69	1	1	0	3	0	74
Request donors allow restricted gifts to be used for other purposes	Revenue Enhancement	64	2	2	6	0	0	74

Research Question Three

Among CFOs at public four-year institutions that experienced a decrease in state appropriations of at least 5% from 2008 to 2009, what financial management strategies and tactics have been most implemented and rated as having the most fiscal impact based on enrollment size?

In order to analyze the data further by size of the institution, as measured by student enrollment, the data were further disaggregated according to institutions reporting enrollment from 0 to 9,999 students, 10,000 to 19,999 students, and more than 20,000 students. As previously discovered in research question one, implementing the tactic of student tuition and fees increases was heavily relied upon for each of the enrollment size categories. However, the only two institutions reporting that they did not increase student tuition and fees in response to a loss of state appropriations were institutions with less than 9,999 students. Of the other institutions with more than 9,999 students, 100% of those responding indicated they did increase student tuition and fees. Beyond raising tuition and fees, other tactics were more or less heavily implemented depending on the enrollment size when examining the ten most implemented tactics for each group. The small institutions indicated that reducing faculty and staff through nonreplacement, faculty and staff salary freezes, and allocating funds primarily based on program needs were heavily relied upon tactics. However, these three tactics were not within the top ten tactics implemented for either medium or large institutions. Table 10, 11, and 12 provide the results for each group, while Table 13 provides a summary of the frequency of tactic implementation in cross-tabulation format for comparison purposes.

Table 10

Implemented Tactics for Institutions with Enrollment of 0 – 9,999 Students

Enrollment Size 0 - 9,999		# Implemented	n	% Implemented
Tactic				
Initiate targeted cuts		27	28	96.43%
Increase student tuition and fees (academic related fees)		26	28	92.86%
Increase fund-raising and development efforts		25	28	89.29%
Reduced faculty/staff through nonreplacement		25	28	89.29%
Invest in energy savings and efficiency measures		24	28	85.71%
Use long-range strategic planning for management of budgetary constraints		24	28	85.71%
Faculty/staff salary freeze		24	28	85.71%
Reduce/restrict operating funds		23	28	82.14%
Emphasize teamwork across the departments to accomplish institutional objectives		23	28	82.14%
Allocate funds primarily based on program needs		23	28	82.14%

Table 11

Implemented Tactics for Institutions with Enrollment of 10,000 – 19,999 Students

Enrollment Size 10,000 - 19,999		# Implemented	n	% Implemented
Tactic				
Increase student tuition and fees (academic related fees)		19	19	100.00%
Initiate targeted cuts		19	19	100.00%
Invest in energy savings and efficiency measures		19	19	100.00%
Increase fund-raising and development efforts		17	19	89.47%
Use long-range strategic planning for management of budgetary constraints		17	19	89.47%
Emphasize teamwork across the departments to accomplish institutional objectives		17	19	89.47%
Increase institutional enrollment		17	19	89.47%
Reduce number of administrative positions		16	19	84.21%
Utilize new funding sources or revenue streams.		16	19	84.21%
Re-engineer work tasks		16	19	84.21%

Table 12

Implemented Tactics for Institutions with Enrollment of 20,000 students and above

Enrollment Size 20,000 and above		# Implemented	n	% Implemented
Tactic				
Increase student tuition and fees (academic related fees)		27	27	100.00%
Invest in energy savings and efficiency measures		27	28	96.43%
Increase fund-raising and development efforts		27	28	96.43%
Reduce/restrict operating funds		26	28	92.86%
Initiate targeted cuts		24	28	85.71%
Utilize federal stimulus funds		24	28	85.71%
Emphasize teamwork across the departments to accomplish institutional objectives		23	28	82.14%
Increase incidental fees (non-academic related: i.e. parking fees, etc.)		23	28	82.14%
Re-engineer work tasks		23	28	82.14%
Use long-range strategic planning for management of budgetary constraints		23	28	82.14%

When examining the distribution table of comparisons for each enrollment category, many of the most implemented tactics are similar. However, several tactics were implemented much more or much less depending on the enrollment size. Larger institutions implemented fund-raising and development efforts more often than schools with smaller enrollments as well as investing in energy savings and efficiency measures. Smaller institutions implemented targeted cuts, reductions in faculty and staff positions through non-replacement, and faculty and staff salary freezes at a higher rate than those institutions with more than 20,000 students.

Table 13

Frequency of Most Implemented Tactics by Enrollment Size

Enrollment Size Tactic	0 - 9,999 % Implemented	10,000 - 19,999 % Implemented	20,000 and above % Implemented
Initiate targeted cuts	96.43%	100.00%	85.71%
Increase student tuition and fees (academic related fees)	92.86%	100.00%	100.00%
Increase fund-raising and development efforts	89.29%	89.47%	96.43%
Reduced faculty/staff through nonreplacement	89.29%	73.68%	78.57%
Invest in energy savings and efficiency measures	85.71%	100.00%	96.43%
Use long-range strategic planning for management of budgetary constraints	85.71%	89.47%	82.14%
Faculty/staff salary freeze	85.71%	78.95%	71.43%
Reduce/restrict operating funds	82.14%	76.47%	92.86%
Emphasize teamwork across the departments to accomplish institutional objectives	82.14%	89.47%	82.14%
Allocate funds primarily based on program needs	82.14%	73.68%	67.86%

Differences in the frequency with which each strategy type was implemented also existed. Regardless of size, institutions implemented those tactics related to expenditure control evenly - 60.71% for institutions with smaller enrollments, 59.57% for those institutions with medium enrollment sizes, and 60.07% for institutions with larger enrollments. Tactics classified as revenue enhancing were much more heavily implemented by institutions with large enrollments. Those institutions with enrollment more than 20,000 implemented revenue enhancing tactics at a rate of 57.09%, while institutions with small enrollments used the tactics at 46.24%, and their medium sized counterparts implemented the tactics at 48.24%. Despite the difference, additional inferential testing for research question eight indicated that there was not a

statistical difference in implementation by strategy type. Table 14 provides a summary review of the frequency of the implementation of each strategy type.

Table 14

Summary of Reliance of Strategy Type by Enrollment Category

Strategy Type	Frequency of Implementation by Enrollment		
	0 - 9,999	10,000 - 19,999	20,000 +
Course & Enrollment Management	37.14%	46.32%	44.89%
Expenditure Control	60.71%	59.57%	60.07%
Operational Efficiency	49.46%	58.42%	54.51%
Personnel	56.16%	59.47%	62.01%
Revenue Enhancement	46.24%	48.24%	57.09%

The fiscal impact of each tactic was also measured during the survey process. This allowed for further insight into not only which tactics were implemented, but also into which specific tactics were considered to have provided the most fiscal impact for each respective campus. Institutions with enrollment size of 0 – 9,999 students utilized many tactics related to personnel to provide fiscal impact including faculty and staff furloughs, salary freezes, reducing the number of administrative positions, non-replacement of retirees, hiring freezes, and reducing permanent staff positions. Table 15 provides a distribution list of those top 10 tactics rated as having the most fiscal impact for small institutions.

Table 15

Fiscal Impact Rating Distribution of Tactics at Institutions with Enrollment of 0 - 9,999 Students

Tactic	Not Implemented	Number of Responses for Each Item				
		Implemented, with Negative Fiscal Impact	Implemented, with No Fiscal Impact	Implemented, with Low Fiscal Impact	Implemented, with Moderate Fiscal Impact	Implemented, with High Fiscal Impact
Increase student tuition and fees (academic related fees)	2	0	0	3	16	7
Mandate faculty/staff furloughs	19	0	0	2	4	3
Utilize federal stimulus funds (in FY09, not FY10 or FY11)	9	0	3	4	4	8
Reduced faculty/staff through nonreplacement	3	0	1	9	11	4
Faculty/staff salary freeze	4	0	4	7	6	7
Reduce number of administrative positions	10	0	0	9	6	3
Initiate a hiring freeze	10	1	1	4	7	3
Reduce permanent staff positions	10	0	2	7	6	3
Initiate targeted cuts	1	1	2	9	11	4
Invest in energy savings and efficiency measures	4	0	1	11	10	2

Institutions with small enrollments rated many of the tactics related to personnel as having strong positive fiscal impact. Institutions with medium sized enrollments rated a more wide-ranging selection of financial management tactics as having strong positive fiscal impact for those tactics that were implemented. Although it was rarely implemented, the medium sized institutions that implemented limiting institutional enrollment reported that it was done with moderate or high fiscal impact. Federal stimulus funds were also reported as having high fiscal impact by four of the five institutions who were able to utilize the tactic. Initiating targeted cuts and scholarship reductions were tactics that medium sized institutions rated more fiscally impactful than the small institutions. Table 16 provides the listing of the top 10 tactics rated as having the most fiscal impact for medium sized institutions.

Table 16

*Fiscal Impact Rating Distribution of Tactics at Institutions with Enrollment of 10,000 - 19,999**Students*

Tactic	Not Implemented	Number of Responses for Each Item				
		Implemented, with Negative Fiscal Impact	Implemented, with No Fiscal Impact	Implemented, with Low Fiscal Impact	Implemented, with Moderate Fiscal Impact	Implemented, with High Fiscal Impact
Limit institutional enrollment	17	0	0	0	1	1
Mandate faculty/staff furloughs	14	0	1	0	0	4
Utilize federal stimulus funds (in FY09, not FY10 or FY11)	4	0	2	0	3	10
Increase student tuition and fees (academic related fees)	0	0	0	2	8	9
Differential tuition for expensive programs	12	0	0	1	3	3
Initiate across-the-board cuts	11	0	0	1	5	2
Faculty/staff salary freeze	4	0	1	4	3	7
Initiate targeted cuts	0	0	0	5	9	5
Increase enrollment in specific areas (out-of-state students, ,	7	0	0	4	4	4
Reduce number or amount of scholarships	17	0	0	1	0	1

The largest institutions, in terms of student enrollment greater than 20,000, showed even more variation when considering the fiscal impact of implemented tactics. Some of the least implemented tactics for all institutions were rated as having high fiscal impact for the institutions in the largest enrollment group. While increases in student tuition and fees remained a strongly rated tactic in terms of fiscal impact, the utilization of long and short-term borrowing was considered fiscally impactful. Other standard and widely implemented tactics rated as fiscally impactful were faculty and staff salary freezes, and using federal stimulus funds. Institutions with large enrollments rated differential tuition for expensive programs as impactful, along with managing institutional enrollment, either limiting or increasing enrollment depending on the circumstances at the institution as fiscally impactful. Table 17 provides a distribution list of those top 10 tactics rated as having the most fiscal impact when implemented at institutions with enrollments greater than 20,000 students.

Table 17

Fiscal Impact Rating Distribution of Tactics at Institutions with Enrollment above 20,000

Students

Tactic	Not Implemented	Number of Responses for Each Item				
		Implemented, with Negative Fiscal Impact	Implemented, with No Fiscal Impact	Implemented, with Low Fiscal Impact	Implemented, with Moderate Fiscal Impact	Implemented, with High Fiscal Impact
Utilize long-term borrowing	27	0	0	0	0	1
Increase student tuition and fees (academic related fees)	0	0	0	0	14	13
Increase institutional enrollment	12	0	0	2	8	6
Limit institutional enrollment	23	0	0	1	3	1
Utilize short-term borrowing	26	0	0	0	2	0
Faculty/staff salary freeze	8	0	0	5	11	4
Differential tuition for expensive programs	11	0	0	4	10	2
Initiate across-the-board cuts	12	2	0	2	6	6
Utilize federal stimulus funds (in FY09, not FY10 or FY11)	4	1	1	7	7	8
Increase enrollment in specific areas (out-of-state students, online students, etc.)	9	0	2	4	9	4

Research Question Four

What channels of information were rated as most influential for CFOs in knowing and understanding which financial management strategies and tactics to implement?

Analysis was performed on the chief financial officers identification of what channels of information were considered to be most influential in knowing and understanding about possible financial management strategies and tactics to implement. Mean scores for each option was calculated in order to determine which channel of information provided the most influential avenue for CFOs responding to survey question. In calculating the mean score for each item, *Not at all Influential* was coded as 0, *Slightly Influential* was coded as 1, *Moderately Influential* was coded as 2, *Very Influential* was coded as 3, and *Extremely Influential* was coded as 4.

Chief financial officers indicated that they most heavily relied on their own personal experience and decision making background as the most influential avenue in knowing and understanding the possible financial management strategies and tactics available to be implemented. Recommendations and discussions with and among colleagues at their institution

was considered to be almost as influential as their own personal experiences and decision making. The mean score for their own personal experiences and decision making was 2.99 and the median score was 3, while the mean score for recommendations and discussions with and among colleagues at their institution was 2.97, also with a median score of 3. Information from conferences and recommendations and information from professional trade groups such as NACUBO, was rated low and considered to be only marginally influential with mean scores of 0.99 and 1.19, respectively. Table 18 provides the distribution summary and mean scores for each available channel of information.

Table 18

Distribution Chart of Ratings Related to the Influence of Different Information Channels on Financial Management Tactic Implementation

	Not at all Influential	Slightly Influential	Moderately Influential	Very Influential	Extremely Influential	Mean	Mdn	n
Own personal experiences and decision making	1	0	17	38	19	2.99	3.00	75
Recommendations and discussions with colleagues at my institution	0	2	19	33	21	2.97	3.00	75
Your own formal education	10	15	12	27	11	2.19	3.00	75
Recommendations and discussions from professional colleagues at other institutions	6	19	34	12	4	1.85	2.00	75
What other institutions were implementing	6	26	24	12	6	1.81	2.00	74
Recommendations and information from NACUBO or other professional trade group	23	22	23	7	0	1.19	1.00	75
Information from conferences attended	29	25	15	5	1	0.99	1.00	75

Research Question Five

Among CFOs at public four-year institutions responding to environmental decline conditions, what guided the selection of financial management response?

CFOs were asked to rank, in order of importance, the factors from 1 to 5, with 1 representing the most important and 5 representing the least important factor guiding the

selection of financial management response. Chief financial officers indicated that the selection of tactics to implement was based least on the concerns of negative political impact and that tactics were primarily selected and implemented according to the institutional strategic plan. Of the 70 respondents, 31 indicated that the financial management strategies and tactics chosen to implement on their campus used the institutional strategic plan as a guide. Of those responding, 44% ranked the strategic plan as most important. Also a common reason for selecting tactics to implement, 18 respondents reported that tactic selection and implementation was based primarily on the perceived level of highest fiscal impact. Of those responding, 26% ranked the perceived level of highest fiscal impact as most important, while another 20% ranked the perception of intrusiveness for campus constituents to be the most important factor. The need to maintain fiscal stability, with no overarching approach, was ranked as the key factor in determining financial management response by 11% of the respondents. Ranked as the least important guiding factor in choosing financial management tactics to implement was the concern for a tactic having negative political impact. Only 1 respondent, out of 68 ranking this selection response, considered it to be the main factor, while 36 respondents identified avoiding negative political impact as the least important of the reasons each CFO used to determine which tactics to implement. Table 19 provides a distribution chart of the rankings reported by CFOs when determining the overall importance of what factors guided the selection of financial management response.

Table 19

Distribution Chart of Factors Guiding the Selection of Financial Management Response

Factor	Mean	Distribution of Rank Score						Mdn	Total
		1	2	3	4	5			
Implemented tactics according to the institutional strategic plan	2.31	31 (44%)	14 (20%)	8 (11%)	6 (9%)	11 (16%)	2.00	70	
Perceived level of highest fiscal impact	2.53	18 (26%)	17 (25%)	17 (24%)	11 (16%)	5 (7%)	2.00	68	
Perceived to be least intrusive for campus constituents	2.56	14 (20%)	24 (34%)	16 (23%)	11 (16%)	5 (7%)	2.00	70	
Implemented as needed to maintain fiscal stability, no overarching approach	3.13	8 (11%)	12 (17%)	23 (33%)	17 (24%)	10 (14%)	3.00	70	
Avoidance of perceived negative political impact	4.29	1 (1%)	4 (6%)	5 (7%)	22 (32%)	36 (53%)	5.00	68	

Research Question Six

Were the financial management strategies and tactics implemented at public four-year institutions that experienced a decrease in state appropriations of at least 5% from 2008 to 2009 considered to have satisfied the desired level of fiscal stability of the CFO?

A slight majority, 55%, of chief financial officers, indicate that they were either very satisfied or completely satisfied with the level of fiscal stability obtained from the implementation of selected financial management strategies and tactics in response to eroding state appropriations from 2008 to 2009. No CFO answered that they were not at all satisfied with the achieved level of fiscal stability, and 45% indicated that they were slightly or moderately satisfied with the degree of fiscal stability gained by the implementation of certain financial management tactics. Table 20 provides the frequency and percentage of the degree to which the financial management response fulfilled the desired level of fiscal stability.

Table 20

The Degree to which the Financial Management Response Implemented Fulfilled the Desired Level of Fiscal Stability

	Number	%
Not at all satisfied	0	0%
Slightly satisfied	7	9%
Moderately satisfied	27	36%
Very satisfied	32	43%
Completely satisfied	9	12%
	n=75	100%

Research Question Seven

What are the psychometric properties of the survey instrument designed to capture the financial management strategy types implemented by CFOs at public four-year institutions that experienced a decrease in state appropriations of at least 5% from 2008 to 2009?

In order to evaluate the researcher-created survey instrument used to capture chief financial officers' perceptions of financial management response at their institutions, exploratory factor analysis was performed to determine the statistical patterns of correlation among the individual tactics and to reduce the tactics to a smaller set of strategy types (Tabachnick & Fidell, 2007). The reduction of individual tactics into smaller correlated groupings allowed for a closer examination of possible underlying concepts and processes related to financial management responses to eroding appropriations. The responses for each of the 75 institutions were recoded to indicate if the tactic was or was not implemented on their campus as a part of the overall financial management response. For those tactics that a CFO indicated *Not Implemented*, the score was coded as 0. For those tactics that a CFO indicated had been

implemented, regardless to what degree of fiscal impact, the score was coded as 1. The recoded dataset was loaded to SPSS® in order to begin the factor analysis process.

A series of exploratory factor analysis tests were run within SPSS® using maximum likelihood extraction method and varimax rotation. While the sample size is relatively small at 75 cases, the results can be evaluated and interpreted for meaning. According to Sapnas and Zeller (2002), sample sizes as small as 50 can be considered sufficient with good communality. A small sample size has a lower percentage of producing the correct factor structure, but increased communalities and larger loadings can help ensure that the identified factor structure is good (Costello & Osborne, 2005). As detailed in the next few steps, the dataset for this study was subjected to multiple reviews of the communalities and loadings in order to provide more assurance to the quality of the factor structure. The initial extractions contained all 50 individual tactics; however, some tactics were removed from the dataset due to the very low communalities indicating weak overlap with the underlying constructs (Tabachnick & Fidell, 2007). Appendix H details the factor structure and communality scores for the initial factor matrix that included all 50 tactics. Those items with communalities of less than 0.20 were removed from analysis. There were a total of 18 items that did not meet the communality threshold to be included in the exploratory factor analysis.

The initial scree plot from the exploratory factor analysis, which included all 50 items, showed that there is not enough substantial difference in the eigenvalues to determine an appropriate numbers of factors (Tabachnick & Fidell, 2007). Further, there was a relatively weak percentage of total variance explained if only a few factors were selected from the model that included all 50 items. Figure 1 displays the scree plot for the initial exploratory factor analysis performed prior to removing items determined to have little overlap with the underlying

constructs. Table 21 below presents the Eigenvalues and variances explained from the initial factor analysis with all 50 items.

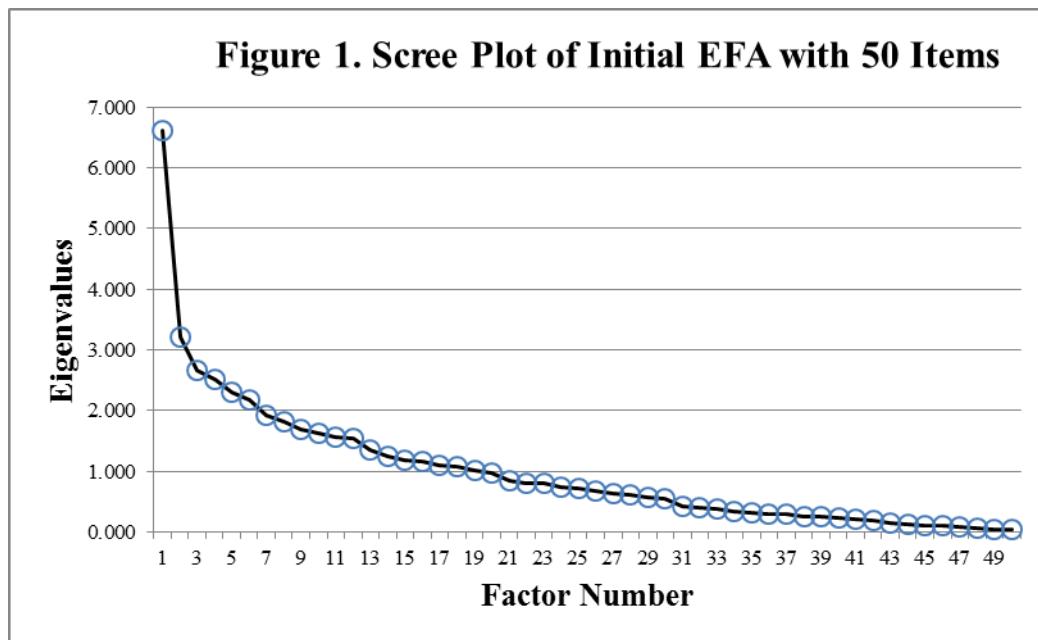


Table 21

Eigenvalues and Variances Explained of Initial Factor Analysis with 50 Items

Initial Eigenvalues			
Factor	Total	% of Variance	Cumulative %
1	6.623	13.247	13.247
2	3.201	6.402	19.648
3	2.667	5.334	24.982
4	2.506	5.012	29.994
5	2.293	4.586	34.580

The best simple solution is five factors with 32 items and was identified based on scree plot analysis and the percentage of variability explained by the remaining items that were not removed due to low communality. Close analysis of the scree plot of eigenvalues shows a drop off between the fifth and sixth factor, where factors after five show little difference in the eigenvalue as the curve flattens. The five factor solution explains 45% of the variability in the 32 items included in the best solution factor analysis. The Kaiser-Meyer-Olkin measure of

sampling adequacy is acceptable at .572, but considered low (Tabachnick & Fidell, 2007), most likely due to the small sample size evaluated for the study. The scree plot for the best simple solution is reported in Figure 2 and the eigenvalues and variances are shown in table 22 below.

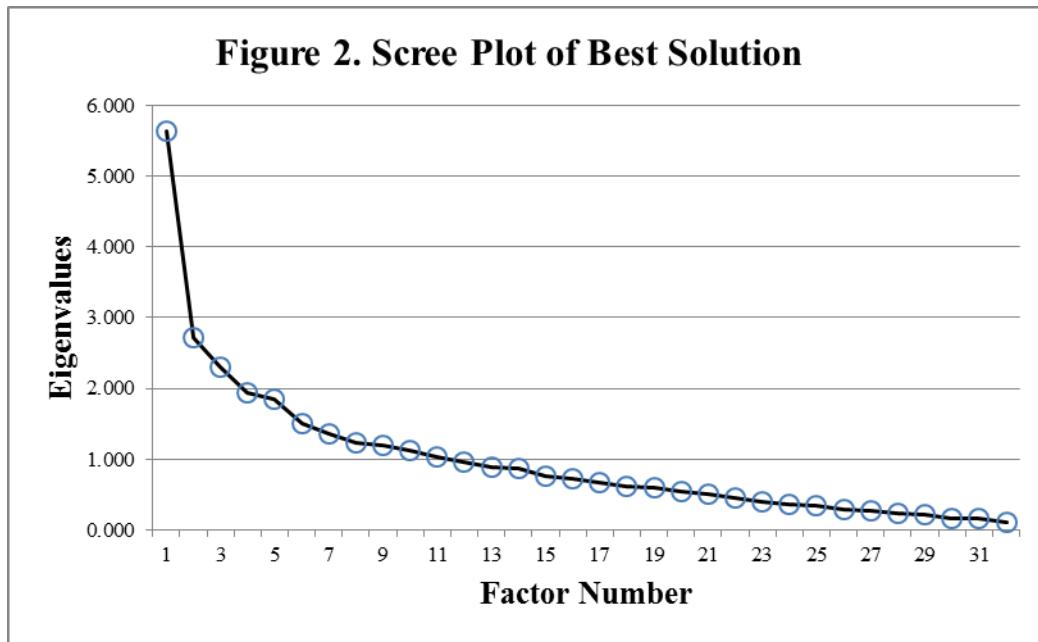


Table 22

Eigenvalues and Variances Explained of Best Simple Solution Factor Analysis with 32 Items

Initial Eigenvalues			
Factor	Total	% of Variance	Cumulative %
1	5.627	17.583	17.583
2	2.711	8.472	26.055
3	2.298	7.181	33.236
4	1.933	6.041	39.277
5	1.843	5.759	45.036

The rotated factor solution is shown below with corresponding communalities in Table 23.

Tactics in the table are grouped according to the factor determined by exploratory factor analysis after removal of tactics with communalities below 0.20. A comparison of the researcher grouped tactics based on the literature review can be examined by reviewing the item number. The first

digit in the item number indicates the original strategy type grouping, where all the 1.x items were grouped together and all 2.x items were grouped together, and so on.

Table 23

Rotated Factor Matrix with Factor Grouping and Communalities

Item Number	Item	Loading	Factor	Communalities Extraction
1.6	Eliminate courses	0.617	1	0.407
1.4	Collapse courses into fewer, larger sections	0.522	1	0.355
4.5	Mandate faculty/staff furloughs	-0.430	1	0.432
3.1	Re-engineer work tasks	0.417	1	0.301
3.7	Reduce and/or modify scope of activities of institution	0.399	1	0.253
4.2	Reduce number of faculty	0.398	1	0.280
1.9	Provide program delivery primarily based on cost	0.398	1	0.239
4.4	Reduced faculty/staff through nonreplacement	0.368	1	0.309
3.5	Apply break-even analysis to programs	0.348	1	0.237
1.3	Eliminate programs	0.341	1	0.252
2.5	Reduce or restrict operating funds	0.580	2	0.346
4.3	Initiate a hiring freeze	0.571	2	0.381
2.4	Defer equipment purchases	0.570	2	0.396
2.3	Reduce funding available for professional development and travel	0.566	2	0.417
5.3	Increase fund-raising and development efforts	0.473	2	0.287
5.1	Increase incidental fees (non-academic related fees)	0.390	2	0.203
2.9	Defer maintenance	0.388	2	0.215
2.1	Reduce funding and staffing for library services and student services	0.768	3	0.632
2.10	Reduce funding for student life activities	0.497	3	0.428
5.2	Increase use of restricted funds	0.492	3	0.360
1.7	Reduce number or amount of scholarships	0.423	3	0.230
4.1	Increase number of adjunct faculty	0.412	3	0.279
1.2	Increase enrollments in selected programs	0.647	4	0.469
1.5	Increase institutional enrollment	0.638	4	0.420
1.8	Increase enrollments in specific areas (out-of-state students, etc.)	0.477	4	0.274
1.10	Limit institutional enrollment	-0.447	4	0.261
1.1	Increase student/faculty ratio	0.387	4	0.393
4.10	Lay-off personnel	0.674	5	0.772
3.8	Outsource operations and services previously provided internally	0.524	5	0.429
4.6	Reduce permanent staff positions	0.484	5	0.442
4.8	Implement or enhance an early or phased retirement program	0.475	5	0.244
4.7	Reduce number of administrative positions	0.393	5	0.345

Extraction Method: Maximum Likelihood

Rotation Method: Varimax with Kaiser Normalization

The 18 tactics that were not included in the rotated factor analysis due to low communalities are in Table 24. These individual tactics had low association with any underlying construct based on the exploratory factor analysis.

Table 24

Individual Tactics Excluded from Best Simple Solution Factor Matrix

Item Number	Item
2.2	Reduce financial commitment to athletic activities
2.6	Initiate targeted cuts
2.7	Allocate funds primarily based on program needs
2.8	Initiate across-the-board cuts
3.2	Increase reliance on technology in teaching and learning
3.3	Implement TQM
3.4	Institute growth by substitution rather than addition
3.6	Use long-range strategic planning for management and budgeting
3.10	Emphasize teamwork across departments to accomplish institutional objectives
4.9	Faculty/staff salary freeze
5.4	Utilize new funding sources or revenue streams
5.5	Increase student tuition and fees (academic related)
5.6	Utilize short-term borrowing
5.7	Differential tuition for expensive programs
5.8	Utilize long-term borrowing
5.9	Reequest that donors allow restricted gifts to be used for other purposes
5.10	Utilize federal stimulus funds (in FY09, not FY10 or FY11)

After examination of the exploratory factor analysis output using maximum likelihood extraction method and varimax rotation, the statistical factor structure is not aligned with the researcher identified constructs from the literature review. Although many similarities exist in the factor structure and the theoretical groupings, differences exist. After careful analysis of the items in the new factor structure, factor 1 is related primarily to course and program management. The tactics grouped in factor 1 are to eliminate courses, collapse courses into fewer and larger sections, mandate faculty furloughs, re-engineer work tasks, reduce and/or

modify the scope of activities of the institution, reduce the number of faculty, provide program delivery primarily based on cost, reduce faculty and staff through nonreplacement, apply break-even analysis to programs, and eliminate programs. Tactics grouped into factor 2 are clustered around expense management and include the tactics reduce or restrict operating funds, initiate a hiring freeze, defer equipment purchases, reduce funding for professional development and travel, increase fund-raising and development efforts, increase incidental fees, and defer maintenance. Tactics for factor 3 are aligned primarily around institutional services and support. The tactics included are reduce funding and staffing for library services and student services, reduce funding for student life activities, increase use of restricted funds (restricted funds are most commonly non-teaching activities and campus support funds), reduce number or amount of scholarships, and increase number of adjunct faculty. The tactics grouped together statistically in factor 4 are enrollment based. These tactics are increase enrollments in selected programs, increase institutional enrollments, increase enrollments in specific areas, limit institutional enrollments, and increase student/faculty ratio. Personnel related tactics are grouped together in factor 5. The tactics that are within factor 5 are lay-off personnel, outsource operations and services previously provided internally, reduce permanent staff positions, implement or enhance an early or phased retirement program, and reduce the number of administrative positions. Table 25 provides a summary of the tactics statistically grouped by the factor analysis.

Table 25

Financial Management Tactics Grouped by Factor

Factor Group	Tactic
Factor 1: Course and Program Management	Eliminate courses Collapse courses into fewer, larger sections Mandate faculty/staff furloughs Re-engineer work tasks Reduce and/or modify scope of activities of institution Reduce number of faculty Provide program delivery primarily based on cost Reduced faculty/staff through nonreplacement Apply break-even analysis to programs <u>Eliminate programs</u>
Factor 2: Expense Management	Reduce or restrict operating funds Initiate a hiring freeze Defer equipment purchases Reduce funding available for professional development and travel Increase fund-raising and development efforts Increase incidental fees (non-academic related fees) Defer maintenance
Factor 3: Institutional Services and Support	Reduce funding and staffing for library services and student services Reduce funding for student life activities Increase use of restricted funds Reduce number or amount of scholarships <u>Increase number of adjunct faculty</u>
Factor 4: Enrollment	Increase enrollments in selected programs Increase institutional enrollment Increase enrollments in specific areas (out-of-state students, online, etc.) Limit institutional enrollment Increase student/faculty ratio
Factor 5: Personnel	Lay-off personnel Outsource operations and services previously provided internally Reduce permanent staff positions Implement or enhance an early or phased retirement program Reduce number of administrative positions

Research Question Eight

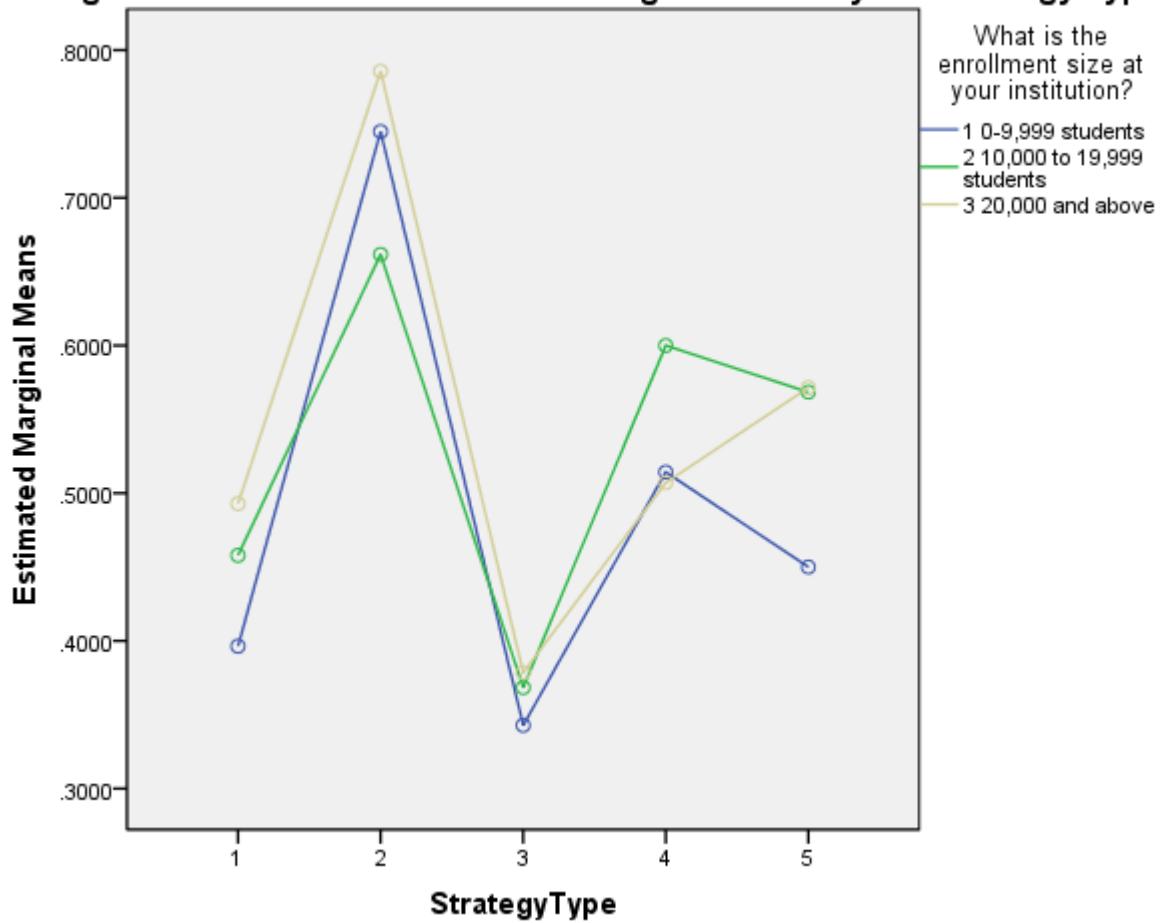
Is there a difference in the pattern of financial management strategy types, determined from exploratory factor analysis, implemented by CFOs at public four-year institutions that experienced a decrease in state appropriations of at least 5% from 2008 to 2009 based on enrollment size?

A profile analysis was performed on the five-factor solution created from the exploratory factor analysis discussed for research question seven: course and program management, expense management, institutional services and support, enrollment, and personnel. The grouping variable was institutional size, divided into three groups that represented smaller institutions with 0 to 9,999 students, medium sized institutions with enrollments between 10,000 and 19,999 students, and larger institutions with enrollments greater than 20,000 students.

SPSS® generalized linear modeling (GLM) was used for analysis. No data were missing from the analysis, which included responses for 75 institutions across small, medium, and large institutions. No outliers are present and evaluation of assumptions was satisfactory. Assumptions regarding homogeneity of variance-covariance matrices, linearity, and multicollinearity were met (Tabachnick & Fidell, 2007).

Using Wilks' criterion (Tabachnick & Fidell, 2007), the profiles were not statistically deviated from parallelism, where $F(8, 138) = 1.053, p = .400$. The factor score was not significantly dependent on the size of the institution. Deviation from flatness was not found because the individual outcome variables were not significant, meaning the profiles, measured by enrollment size, had the same general average response across the strategy types. Based on the statistical output of the 32 tactics within the 5 strategy types that were determined from exploratory factor analysis, there was no statistical difference in the selection of financial management strategy types by institutional size. In other words, institutions, regardless of the enrollment size, implemented strategies similarly to offset the loss of state appropriations from 2008 to 2009. Figure 3 displays the profile plots for the three institutional sizes where profile 1 is for small institutions, profile 2 is for medium enrollment sized institutions, and profile 3 is for institutions with large enrollments.

Figure 3. Profile Plots of Estimated Marginal Means by EFA Strategy Type



Summary

This chapter presented the results of the analyses of data performed in order to answer the eight research questions included as part of this study. Descriptive statistics were analyzed in order to determine which financial management strategies and tactics had been implemented, which tactics were rated as having the highest fiscal impact, and which tactics were implemented and rated as most fiscally impactful by the institutional enrollment size. Descriptive statistics were also analyzed to determine several issues as perceived by the chief financial officer of the institution. Further, inferential statistics were used to examine the psychometric properties of the survey instrument and to determine if institutions of different sizes implemented different

financial management responses to offset environmental decline. The following chapter will provide findings and conclusions from the completed study, as well as, recommendations for policy, practice, and future research.

CHAPTER V: FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

Introduction

The purpose of this study was to gain an understanding of the institutional financial management strategies and tactics being developed and implemented at public four-year institutions in response to the erosion of state appropriations as a key component of the revenue base. Funds received from state appropriations are a significant source of revenue for public higher education institutions. A common response for state governments is to balance their budget by reducing state support for public higher education (Selingo, 2003) and historically, state support declines after each economic recessionary period (Zumeta, 2004). Public institutions experienced deep and substantial cuts to state appropriations from fiscal year 2008 to 2009 that spurred the necessity for institutions to act quickly in order to maintain their operational ability. It is important to understand what financial management strategies and tactics were implemented during the most recent decline in funding appropriated for public institutions. Gaining knowledge and understanding of the actions that public higher education institutions employed to help offset a significant decline in revenue will better prepare policymakers, practitioners, and the public for future economic cycles that impact education.

This chapter will present a summary of findings for the research questions, which will be followed by the conclusions drawn from the current research. After a discussion of these initial conclusions, recommendations for policymakers and practitioners are presented, followed by

recommendations for future researchers. Finally, concluding thoughts from the researcher will provide context and further insight into the results of the current study.

Findings

Eight research questions guided this study and are presented here along with the research results and narrative to illuminate particular points of interest.

Research Question One

Among CFOs at public four-year institutions that experienced a decrease in state appropriations of at least 5% from 2008 to 2009, what financial management strategies and tactics have been most and least implemented?

When considering the substantial reduction in state appropriations and the measures needed to help offset the environmental decline, chief financial and business officers indicated that a number of financial management tactics were heavily relied upon while other tactics were seldom implemented. Data from the survey pertaining specifically to the implementation of tactics showed great disparity between the most and least implemented tactics, as many were widely adopted, and others were scarcely considered, indicating a general pattern of response. Tuition and fee increases were the most frequently adopted tactic at a rate of 97.30%. Out of 74 respondents, 72 confirmed their campus had implemented student tuition and fee increases in direct response to appropriation losses. Several other tactics were implemented at very high rates across all institutions. Eight different tactics, spread across different types of strategies, were implemented by at least 80% of the institutions responding to the survey. This finding suggests that certain financial management tactics will be used similarly across all institutional contexts, when public support for higher education is reduced through the appropriation process. Initiating targeted cuts, not the often mentioned across-the-board cuts, and investing in energy

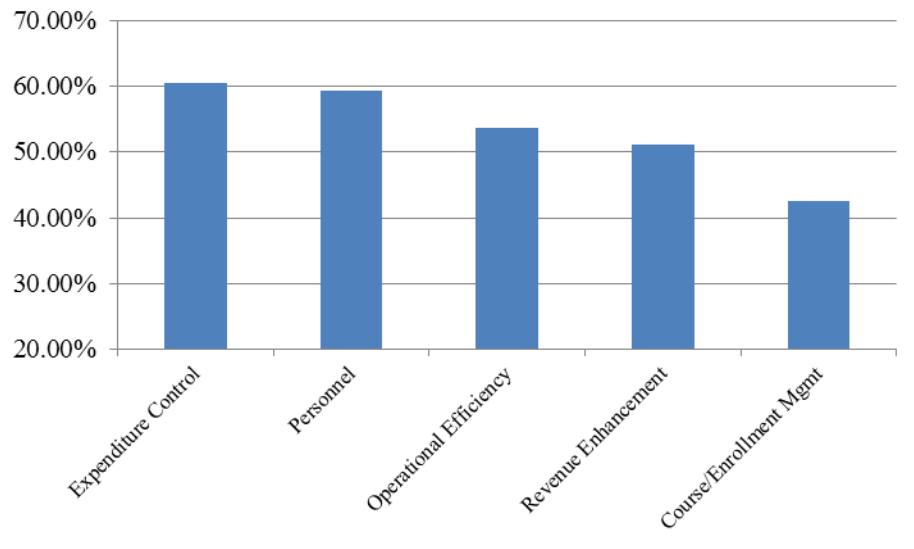
savings and efficiency measures were both implemented by 93.33% of the institutions. Increasing fund-raising and development efforts was shown to be popular as well, with 92% of institutions implementing the strategy in an attempt to boost other revenue streams. Using long-range strategic planning for the management of budget constraints was implemented by 85.33%, while reducing and restricting operating funds were implemented by 84.93% of the institutions that responded to the survey. Tactics that affected campus personnel were also some of the most implemented tactics. Emphasizing teamwork across departments to accomplish institutional objectives and reducing faculty and staff through non-replacement were implemented by 84% and 81.33%, respectively.

Several tactics were found to be equally unpopular among chief financial officers implementation decisions. There were nine different tactics that fewer than 20% of the institutions implemented, also across a variety of different strategy types. Long-term and short-term borrowing were both implemented at only 6.67% of the institutions, which should be considered a positive finding considering that state appropriations are used primarily for current operating needs and the financing of current operations with debt connotes larger underlying issues for an institution. Limiting institutional enrollment and reducing the number or amount of scholarships were only implemented by 12% of the institutions. Instituting growth by substitution rather than by addition was adopted 13.51% of the time by the institutions responding, as was requesting that donors allow restricted gifts to be used for other purposes. Athletic endeavors on campus were relatively unscathed during the difficult financial times from 2008 to 2009, as only 14.67% of institutions reduced their financial commitment to athletic activities. A stalwart of the 1980s and 1990s management fads, implementing total quality management (TQM), was implemented only 15.07% by institutions. Despite frequent concerns

related to expenditures, providing program delivery primarily based on cost was not overly popular, and was implemented at only 17.33% of the institutions.

The strategy types discussed extensively in the literature review were also evaluated as a piece of the analysis related to the most and least implemented strategies. Tactics related theoretically to controlling expenditures and to personnel were the most frequently implemented tactics to offset environmental decline. Expenditure control tactics were implemented at a rate of 60.46%, while tactics related to personnel were implemented at a rate of 59.46%. Operational efficiency tactics, despite the notion that institutions should ‘tighten their belts’, was implemented less frequently at 53.75% of institutions. The most widely implemented tactic, increasing tuition and fees, was a revenue enhancement strategy. However, the 51.08% implementation rate for the revenue enhancement strategy group suggests that replacing lost revenue from one stream is considerably more difficult in reality than it is theoretically. The least frequently implemented strategy type was the course and enrollment management construct. An implementation rate of only 42.61% was found for those tactics related to the course and enrollment activities for the institutions responding to the study. Figure 4 presents the implementation rates by strategy type.

Figure 4. Implementation Rates by Strategy Type



Research Question Two

Among CFOs at public four-year institutions that experienced a decrease in state appropriations of at least 5% from 2008 to 2009, which financial management strategies and tactics were rated as having the most and least fiscal impact?

The current study focused not only on what financial management strategies and tactics were implemented, but also investigated the fiscal impact that implemented tactics had for each institution relative to the chief financial officers perception. Increasing student tuition and fees was the most implemented tactic, and it was also rated as the tactic providing the most fiscal impact. More than 93.05% of the CFOs at institutions that implemented tuition and fee increases rated the fiscal impact of the tactic to have had moderate or high fiscal impact. Two other tactics were in distant second, in terms of being rated as having moderate or high fiscal impact. Utilizing federal stimulus funds and differential tuition, where implemented, was reported as having moderate or high fiscal impact 68.97% of the time. However, federal stimulus funds may

have limited utility for future financial management response due to the unique atmosphere that created a possible one-time source of funds for colleges and universities. Table 26 lists the mean score for the fiscal impact rating of implemented financial management tactics considered to have had the most fiscal impact. On the scoring scale used, a mean score of 0 indicates the tactic was implemented with negative fiscal impact and a mean score of 4 indicates that the tactic was implemented with high fiscal impact.

Table 26

Fiscal Impact Rating by Tactic Considered Most Fiscally Impactful

Rank	Tactic	Mean
1	Increase student tuition and fees (academic related fees)	3.33
2	Utilize federal stimulus funds (in FY09, not FY10 or FY11)	3.00
3	Mandate faculty/staff furloughs	2.96
4	Faculty/staff salary freeze	2.86
5	Differential tuition for expensive programs	2.86
6	Increase institutional enrollment	2.81
7	Utilize long-term borrowing	2.80
8	Limit institutional enrollment	2.78
9	Increase enrollment in specific areas	2.74
10	Initiate targeted cuts	2.74

Implemented tactics with the least rated fiscal impact identified several tactics that provided little or no relief from the loss of state appropriations. No CFOs who implemented the tactic of requesting that donors allow restricted gifts to be used for other purposes rated it as having moderate or high fiscal impact. Only one CFO rated providing program delivery primarily based on cost, when implemented, as having moderate fiscal impact, and none indicated that it had high fiscal impact. Emphasizing teamwork across departments to accomplish institutional objectives was one of the most widely implemented tactics, with 84% of institutions responding their campus implemented the tactic. However, only 23.81% of CFOs indicated that it had moderate or high fiscal impact, while 74.60% indicated that it either had no

fiscal impact or low fiscal impact. Table 27 lists the mean score for the fiscal impact rating of implemented financial management tactics considered to have had the least fiscal impact. On the scoring scale used, a mean score of 0 indicates the tactic was implemented with negative fiscal impact, and a mean score of 4 indicates that the tactic was implemented with high fiscal impact.

Table 27

Fiscal Impact Rating by Tactic Considered Least Fiscally Impactful

Rank	Tactic	Mean
1	Request that donors allow restricted gifts to be used for other purposes	1.40
2	Provide program delivery primarily based on cost	1.54
3	Institute growth by substitution rather than addition	1.80
4	Reduce funding for student life activities	1.96
5	Emphasize teamwork across departments to accomplish institutional objectives	1.97
6	Eliminate courses	2.00
7	Apply break-even analysis to programs	2.00
8	Implement TQM	2.00
9	Utilize short-term borrowing	2.00
10	Increase reliance on technology in teaching and learning	2.11

The most frequently implemented tactic, increasing student tuition and fees, was also rated as having the most fiscal impact. Other tactics, indicated to be the most popular to implement, showed mixed results in terms of fiscal impact. Table 28 lists the most implemented tactics, along with the corresponding fiscal impact mean and fiscal impact ranking out of the 50 tactics.

Table 28

Fiscal Impact Ranking of Most Implemented Tactics

	% Implemented	Impact Mean	Impact Rank
Increase student tuition and fees (academic related fees)	97.30%	3.33	1
Initiate targeted cuts	93.33%	2.74	10
Invest in energy savings and efficiency measures	93.33%	2.73	11
Increase fund-raising and development efforts	92.00%	2.12	38
Use long-range strategic planning for management of budgetary constraints	85.33%	2.34	27
Reduce/restrict operating funds	84.93%	2.55	18
Emphasize teamwork across the departments to accomplish institutional objectives	84.00%	1.97	46
Reduced faculty/staff through nonreplacement	81.33%	2.67	15
Faculty/staff salary freeze	78.67%	2.86	4
Utilize federal stimulus funds	77.33%	3.00	2

Research Question Three

Among CFOs at public four-year institutions that experienced a decrease in state appropriations of at least 5% from 2008 to 2009, what financial management strategies and tactics have been most implemented and rated as having the most fiscal impact based on enrollment size?

The financial management strategies and tactics were further analyzed according to institutional size, as measured based on the enrollment numbers for each responding institution. Those institutions with up to 9,999 students were included in the smallest institution size. Institutions with enrollments between 10,000 and 19,999 students were considered to be medium sized institutions, while institutions with enrollments greater than 20,000 were considered to be large institutions for purposes of the current study. Increasing tuition and fees was the most implemented tactic by medium and large institutions and was implemented by every medium and large institution responding to the survey. The only two institutions reporting that they did not implement tuition and fee increasing were small institutions, thus making it the second most implemented tactic for small institutions, behind initiating targeted cuts, which was implemented

96.43% of the time at small institutions. Medium sized institutions also relied heavily on initiating targeted cuts, with 100% of CFOs from medium sized institutions responding that their campus implemented the tactic. However, large institutions only implemented the tactic 85.71% of the time, placing fifth for large institutions, possibly indicating that large institutions had more options for balancing the loss of state appropriations. Large institutions relied much more heavily on increasing fund-raising and development efforts than other institutions. Large institutions, by definition, have more alumni and a larger constituency in which to seek additional support, thus a 96.43% implementation rate by large institutions compared to only an 89% implementation rate by small and medium institutions. Large institutions were also less likely to engage in the freezing of faculty and staff salaries. Of those small institutions responding, 85.71% implemented faculty and staff salary freezes, compared to 78.95% for medium institutions and only 71.43% for large institutions.

In terms of implementation based on the type of strategy, institutions of differing size relied similarly on expenditure control types of tactics. Institutions implemented expenditure control tactics at a frequency of 60%. The revenue enhancement strategies were much more common for the larger institutions. Those institutions with more than 20,000 students, implemented revenue enhancement type tactics 57.09% of the time, while small institutions implemented revenue enhancement type tactics only 46.24% of the time. The discrepancy in the revenue enhancement strategy type implementation pattern was the largest difference between large and small institutions. Medium sized institutions showed similar implementation patterns as those of large institutions. Table 29 provides a summary review of the frequency of the implementation of each strategy type.

Table 29

Summary of Reliance of Strategy Type by Enrollment Category

Strategy Type	Frequency of Implementation by Enrollment		
	0 - 9,999	10,000 - 19,999	20,000 +
Course & Enrollment Management	37.14%	46.32%	44.89%
Expenditure Control	60.71%	59.57%	60.07%
Operational Efficiency	49.46%	58.42%	54.51%
Personnel	56.16%	59.47%	62.01%
Revenue Enhancement	46.24%	48.24%	57.09%

Fiscal impact ratings were varied across the different institutional sizes. Small institutions rated increasing student tuition and fees as having the highest fiscal impact, with 23 of the 26 institutions that implemented the tactic rating it as having moderate or high fiscal impact. Faculty and staff furloughs and faculty and staff salary freezes were also fiscally impactful for small institutions. Many personnel related tactics were ranked highly in fiscal impact for small institutions. In addition to furloughs and salary freezes, reductions from non-replacement, reductions in the number of administrative positions, reductions in permanent staff, and initiating a hiring freeze were all ranked in the top 10 of fiscally impactful tactics. These tactics related to personnel made up six of the top ten tactics when ranked according to fiscal impact.

Medium sized institutions reflected more variation in the tactics and types of strategies that were reported as fiscally impactful. Only one institution implemented the tactic of limiting institutional enrollment, but rated it as having high fiscal impact. Mandating faculty and staff furloughs was also a fiscally impactful tactic; however, it was also not implemented frequently. Utilizing federal stimulus funds was rated as having high fiscal impact ten times, and increasing student tuition and fees was rated as having high fiscal impact nine times for those CFOs responding at medium sized institutions.

The largest institutions also had a wider variation than the small institutions when rating the fiscal impact of individual financial management tactics. Although borrowing, both short-term and long-term, was the least common tactic to implement, it was rated as having high relative fiscal impact if an institution made the decision to use the tactic as part of its overall approach to dealing with the loss of state appropriations. Utilizing long-term borrowing was implemented once, with high fiscal impact and utilizing short-term borrowing was implemented twice, both times with moderate fiscal impact. Across-the-board cuts had perhaps the widest rating of fiscal impact. Two institutions reported implementing the tactic with negative fiscal impact but another six large institutions rated across-the-board cuts as having high fiscal impact. Increasing student tuition and fees was the most widely implemented tactic for large institutions. Fourteen CFOs reported increasing student tuition and fees had moderate fiscal impact for their campus, and an additional 13 CFOs reported it had high fiscal impact for their campus. No CFO reported that increasing tuition and fees had negative, no, or low fiscal impact.

Research Question Four

What channels of information were rated as most influential for CFOs in knowing and understanding which financial management strategies and tactics to implement?

When negotiating the difficult fluctuations of state appropriations from 2008 to 2009, chief financial officers responded that several different avenues were influential in the decision making process and knowing and understanding what financial management tactics were possible to implement. Personal experience and decision making of the chief financial officer was rated overall as the most influential component. Recommendations from and discussions with colleagues at their institution were also considered to be a highly influential avenue of knowledge and understanding different financial management tactics. Information from

conferences and information and recommendations from professional trade associations and groups were reported to have little influence for CFOs. Only one CFO reported either component to be extremely influential. Table 30 lists the mean scores for each item when rated according to influence in knowing and understanding of financial management tactics. On the scoring scale used, a mean score of 0 represents that the item was rated as not at all influential, and a mean score of 4 represents a tactic that was rated as extremely influential in knowing and understanding financial management strategies and tactics.

Table 30

Mean Score of Information Channel Influence on Financial Management Tactic Implementation

	Mean
Own personal experiences and decision making	2.99
Recommendations and discussions with colleagues at my institution	2.97
Your own formal education	2.19
Recommendations and discussions from professional colleagues at other institutions	1.85
What other institutions were implementing	1.81
Recommendations and information from NACUBO or other professional trade group	1.19
Information from conferences attended	0.99

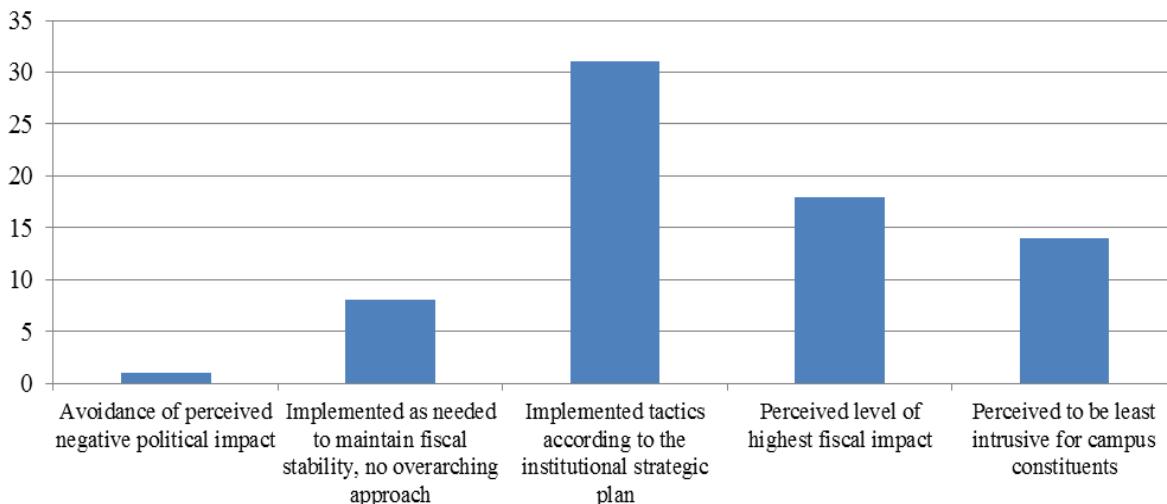
Research Question Five

Among CFOs at public four-year institutions responding to environmental decline conditions, what guided the selection of financial management response?

Chief financial officers reported that the institutional strategic plan was the most critical factor in selecting financial management tactics to implement. Of those responding, 31 CFOs ranked

implementing tactics according to the institutional strategic plan the highest factor in terms of overall importance for the selection and implementation of a financial management response. Supported by rational choice theory, chief financial officers may be using the strategic plan to guide financial management response in order to minimize negative consequences to the institution. Closely aligning financial management response to the institution's goals would help reduce the possibility of implementing tactics that could potentially damage institutional initiatives. Because of the significance of the loss of state appropriations at the institutions included in the study, selecting tactics to implement based on the perceived level of highest fiscal impact was also important. An additional 18 CFOs responded that fiscal impact weighed most heavily when crafting a response to the financial conditions from 2008 to 2009. Chief financial officers were balancing several factors when selecting financial management tactics as evidenced by the high numbers of CFOs who reported different factors as most important. Campus constituents were generally considered in the process of implementing a financial management response where 14 CFOs ranked the perceived intrusiveness for their campus constituents as the overall most important factor. According to the respondents, the least important factor in shaping the financial management response was the concern of political impact. Thirty-six chief financial officers rated the avoidance of perceived negative political impact as the least important factor considered in the process. More than three times the number of CFOs rated the avoidance of perceived negative political impact as least important when compared to any other factor. Figure 5 presents the number of times each factor was ranked as the primary reason for guiding the selection of financial management response.

Figure 5. Frequency that Factor Was Considered as the Primary Reason for the Selection of Financial Management Response



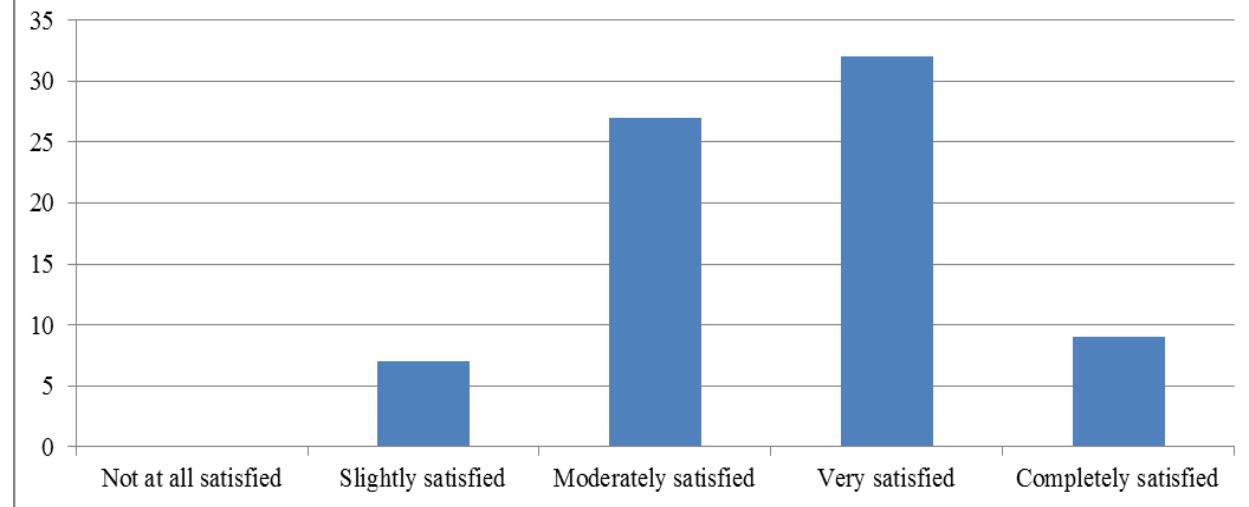
Research Question Six

Were the financial management strategies and tactics implemented at public four-year institutions that experienced a decrease in state appropriations of at least 5% from 2008 to 2009 considered to have satisfied the desired level of fiscal stability of the CFO?

Despite the difficulty of the conditions from 2008 to 2009 that resulted in a loss of state appropriations for many institutions, chief financial officers were generally able to achieve some desired level of fiscal stability at their institutions through the selection and implementation of a multitude of financial management tactics. According to rational choice theory, individuals will make choices that attempt to achieve a desired level of satisfaction through their choices (Simon, 1956). Responses from CFOs indicate that financial management response was indeed implemented with regards to satisfying fiscal stability needed on campus by implementing different combinations of tactics until desired fiscal stability was achieved. Of the 75 CFOs

responding, 12% indicated that they were completely satisfied with the fiscal stability achieved from the financial management response at their institution. Furthermore, another 32 CFOs responded that they were very satisfied with the fiscal stability at their institution. Overall, 55% of chief financial officers were either completely satisfied or very satisfied with their institutions fiscal stability, even though they had experienced large reductions in state appropriations. An additional 27 CFOs (36%) reported being moderately satisfied with the ability of the financial management response to achieve their desired level of fiscal stability. Fewer than 10% of the CFOs reported that they were only slightly satisfied at the level of fiscal stability achieved by the financial management response on their campus. Figure 6 presents the frequency of which the financial management response implemented fulfilled the desired level of fiscal stability of the CFO.

Figure 6. Frequency of which the Financial Management Response Implemented Fulfilled the Desired Level of Fiscal Stability of the CFO



Research Question Seven

What are the psychometric properties of the survey instrument designed to capture the financial management strategy types implemented by CFOs at public four-year institutions that experienced a decrease in state appropriations of at least 5% from 2008 to 2009?

In evaluation of the survey instrument for the current study, it was determined through exploratory factor analysis (Tabachnick & Fidell, 2007) that the constructs assimilated through a review of the literature, do not align with the statistical factor structure. A series of exploratory factor analysis tests were run using SPSS®. The maximum likelihood extraction method with varimax rotation was repeated after examination of the communalities of the individual tactics was performed. After each analysis, the items with communalities that were below 0.20 were removed from the dataset and the exploratory factor analysis was performed again. After multiple extractions, a total of 18 individual tactics were removed from the dataset due to the low overlap with any underlying construct.

Based on careful examination of the scree plot from the exploratory factor analysis performed with 32 items of appropriate communality, the best simple solution was a five factor construct model that explained 45% of the variability. The rotated factor solution had similarities with the theoretical strategies discussed extensively in Chapter II, but was not identical. The statistical groupings were examined and re-named in Chapter IV according to the tactics that each group maintained primary association. The new statistical groupings from the exploratory factor analysis are: course and program management, expense management, institutional services and support, enrollment, and personnel. Table 31 provides the tactics grouped according to the statistical model.

Table 31

Financial Management Tactics Grouped by Factor Analysis

Factor Group	Tactic
Factor 1: Course and Program Management	Eliminate courses Collapse courses into fewer, larger sections Mandate faculty/staff furloughs Re-engineer work tasks Reduce and/or modify scope of activities of institution Reduce number of faculty Provide program delivery primarily based on cost Reduced faculty/staff through nonreplacement Apply break-even analysis to programs <u>Eliminate programs</u>
Factor 2: Expense Management	Reduce or restrict operating funds Initiate a hiring freeze Defer equipment purchases Reduce funding available for professional development and travel Increase fund-raising and development efforts Increase incidental fees (non-academic related fees) Defer maintenance
Factor 3: Institutional Services and Support	Reduce funding and staffing for library services and student services Reduce funding for student life activities Increase use of restricted funds Reduce number or amount of scholarships <u>Increase number of adjunct faculty</u>
Factor 4: Enrollment	Increase enrollments in selected programs Increase institutional enrollment Increase enrollments in specific areas (out-of-state students, online, etc.) Limit institutional enrollment Increase student/faculty ratio
Factor 5: Personnel	Lay-off personnel Outsource operations and services previously provided internally Reduce permanent staff positions Implement or enhance an early or phased retirement program Reduce number of administrative positions

The course and program management factor grouping contains tactics related primarily to the overall maintenance of courses or programs. Eliminating courses and programs were key components of this group. Eliminating courses and programs is directly linked to other tactics in this group such as collapsing courses into fewer and larger sections, mandating employee furloughs, reducing the number of faculty through cuts or nonreplacement. Applying break-even

analysis leads to decisions related to course and program elimination, as well as providing program delivery based primarily on cost.

The expense management factor grouping is comprised of the tactics primarily concerned with expenditures that are institutional in nature and not specific to a certain type or classification. The reduction and restriction of operating funds is a broad response that spans the institution. Similarly, initiating a hiring freeze is not specific to a type of activity, rather a broadly encompassing tactic. Deferring equipment purchases and maintenance entail a wide scope as well. Increasing incidental fees, those non-academic fees, appears at first to be not well matched for a category related to expense management. However, incidental fees are most commonly associated with broad, overarching campus services that users must pay for directly, such as parking and technology fees. Thus, better management of the expenditures in these areas allows an institution to charge a more appropriate fee to re-coup the outlay for services provided.

The tactics that were grouped in institutional services and support are related more to a specific classification of activities. Individual items in this factor group are: reduce funding and staffing for library services and student services, reduce funding for student life activities, increase use of restricted funds, reduce the number or amount of scholarships, and increase the number of adjunct faculty. Restricted funds are generally tied directly to support functions in public higher education. The tactic related to increasing adjunct faculty fits well within this group because a rise in adjunct faculty is likely accompanied by a reduction in service and support functions that full-time faculty provide through service, student advising, and other functions asked of full-time faculty.

A factor grouping that encompasses enrollment patterns and behaviors contained five individual tactics after performing the factor analysis. Increasing enrollments in selected

programs, increasing institutional enrollment, increasing enrollments in specific areas, limiting institutional enrollment, and increasing the student to faculty ratio were all statistically linked and align theoretically. As discussed previously, institutions prefer not to change enrollment and student patterns, but will implement tactics from this group as needed to achieve some desired level of fiscal stability.

The fifth factor grouping was tactics that were centered on institutional personnel. The largest expense for any higher education is expenditures related to personnel. In this group, the tactics to lay-off personnel, outsource operations and services previously provided internally, reduce permanent staff positions, implement or enhance an early or phased retirement program, and reduce the number of administrative positions were statistically grouped.

Research Question Eight

Is there a difference in the pattern of financial management strategy types, determined from exploratory factor analysis, implemented by CFOs at public four-year institutions that experienced a decrease in state appropriations of at least 5% from 2008 to 2009 based on enrollment size?

The five factor simple solution from the exploratory factor analysis was found to categorize the 32 individual tactics into the following groups named by the researcher as: course and program management, expense management, institutional services and support, enrollment, and personnel. An explanation of how these tactics fit together in the strategy groupings was provided previously in the discussion on the research question seven above.

The profile analysis (Tabachnick & Fidell, 2007) statistical output indicates that there was not a difference in the financial management response across institutions with different enrollment sizes. All institutions, regardless of size, appear to have implemented similar

strategies to offset the loss of state appropriations from 2008 to 2009, at least on the 32 individual tactics as grouped by the exploratory factor analysis. Institutions were studied that experienced at least a 5% loss in state appropriations without regard to the variability of the loss, which could have contributed to the profile analysis indicating that all institutions had a similar financial management response. From the current study, it is not known if institutions with greater losses of state appropriations implemented a different financial management response.

Conclusions

Several conclusions can be drawn from the data analysis and findings from this study.

Conclusion One

Students and families will directly bear the burden from reduced public support of higher education due to institutions increasing tuition and fees as the primary financial management response.

Chief financial officers indicated that student tuition and fee increases were the most commonly implemented tactic to help manage the significant loss of state appropriated funding for public four-year institutions. Of those responding to the question, 72 of 74 respondents indicated that student tuition and fees had been raised as a direct result of the fiscal conditions created in each institutions budget stemming from the 5% or greater loss in state appropriations. Of the 97.30% of institutions raising tuition and fee prices, most CFOs considered it to also be the tactic that had the most fiscal impact for their campus. More chief financial and business officers rated tuition and fee increases as the tactic having the highest fiscal impact than any other of the tactics implemented during this period. Of the 72 institutions reporting that they implemented tuition and fee increases, 67 (93.05%) rated the response as having moderate or high fiscal impact for their campus.

This finding further adds support and insight to the studies that have found state appropriations and tuition to have a significant negative relationship (Burgess, 2011; Koshal & Koshal, 2000; McLendon, Hearn, & Hammond, 2006; Rizzo & Ehrenberg, 2004; Rusk & Leslie, 1978). Those studies found that when state appropriations decreased, tuition levels increased. The current study provides descriptive detail that highlights some of the decision making processes of CFOs which link tuition and state appropriations. Chief financial and business officers indicated that not only were tuition and fee increases the most common tactic, but that it also had the most fiscal impact. The findings suggest that the tuition levels in future periods will continue to rise where public support of higher education through state appropriations lags. Prior findings indicated that tuition revenue has increased as a percentage of institutional revenue following recessionary periods (SHEF, 2010). Findings from the current study imply that the tuition revenue trend could continue for subsequent periods of decline.

Conclusion Two

Institutions, regardless of size, will craft a financial management response that utilizes tactics from multiple types of strategies when facing environmental decline.

Of the five theoretical strategy types, institutions implemented a wide range of tactics across course and enrollment management activities, expenditure control, operational efficiency, personnel activities, and revenue enhancement tactics. The 10 most implemented tactics spanned four different strategy types. The three most implemented tactics, increasing student tuition and fees, initiating targeted cuts, and investing in energy savings and efficiency measures, represent three different theoretical strategy types. Expenditure control was the most widely implemented strategy type, with 60.46% of tactics being implemented. Course and enrollment management activities were the least relied upon strategy type, but still had an implementation rate of 42.61%.

Prior studies on financial management in higher education classified the tactics into two types, centered on themes associated with innovation or effectiveness (Chaffee, 1984; Garrett, 2007; Riley, 1994; Scroggins, 1987), and found that institutions chose strategies to implement across the classifications. This study revealed that institutions implement an even wider-ranging approach to financial management and in fact, selected tactics from across all theoretical strategy types.

Although institutions did implement tactics from all strategy types, the preference was to alter course and enrollment activities much less frequently than other strategy types, perhaps because of the close relation of course and enrollment activities to the central components of the institutions plan and mission. This could be interpreted as institutions seeking to implement strategies and tactics that impact less direct stakeholders than the consumers attending the institutions. Similar to nonprofit studies that found the reduction of services to be unpopular (Bullinger, 1987; McMurtry et al., 1991), CFOs implemented course and enrollment tactics at a lower rate than other strategies available. Chief financial officers stated that the financial management response was implemented with the institutional strategic plan as the primary guiding factor, further illustrated by the propensity of CFOs to implement course and enrollment strategies less frequently than other strategy types.

Conclusion Three

Despite the significance of the loss in state appropriations from 2008 to 2009, chief financial officers were able to implement a variety of financial management strategies that satisfied their desired level of fiscal stability. However, subsequent reductions may induce a more drastic approach to financial management.

According to chief financial officers, institutions were able to maintain fiscal stability throughout the most recent recessionary period. Out of the 75 responses related to achieving the desired level of fiscal stability, no CFO reported being not at all satisfied with the fiscal stability, while 55% indicated they were either very satisfied or completely satisfied by the financial management responses ability to alleviate instability created by a loss in state appropriations. In rational choice theory, Simon (1956) argued that individuals will make choices that will achieve a desired level of satisfaction. The current study demonstrates that chief financial officers selected and implemented financial management tactics until a certain desired level of fiscal stability was achieved.

While federal stimulus funds have limited utility for future periods of decline, chief financial officers ranked utilizing federal stimulus funds as highly fiscally impactful for institutions during the current decline. Even though some institutions had little or no flexibility in how federal stimulus funds were spent (Keller, 2009), it was the next highest ranked individual tactic behind only tuition and fee increases. Of the 58 institutions who reported utilizing federal stimulus funds in 2009, 26 indicated that the funds had high fiscal impact. Prior research has shown that institutions implement increasingly drastic financial management measures as the conditions of decline continue (Dougherty & Klase, 2009; Levine et al., 1981). Had federal stimulus funds not been an option for many institutions, there would have certainly been an increase in the use and implementation of other tactics. In the event of another financial decline at public higher education institutions similar to 2008 to 2009, institutions may be forced to implement tactics that have far reaching consequences for students and other constituents due to the likelihood of federal stimulus funds being unavailable.

Conclusion Four

Larger institutions were able to rely more heavily on revenue related strategies and tactics than other institutions.

When comparing the implementation patterns of institutions with different enrollment sizes, institutions with smaller and medium sized enrollments implemented revenue tactics at a rate substantially less than their counterparts with enrollments that were greater than 20,000 students. The frequency of implementation for revenue enhancing strategies, even though all institutions seek to maximize revenue (Bowen, 1980), for small institutions was 46.24%. Institutions considered medium in size, based on enrollment, implemented revenue enhancing strategies at a rate of 48.24%. The larger institutions implemented revenue enhancing tactics 57.09%. This finding illustrates the better ability of larger institutions to seek revenue enhancement as an integral part of their financial management response. The largest discrepancy of any of the financial management strategies was, indeed, in revenue enhancement. This finding supports Combs (1999) suggestion that the larger an organization, the more resources that were available to seek revenue diversification and enhancement.

Conclusion Five

Exploratory factor analysis performed during psychometric testing on the current survey instrument excluded several critical financial management tactics due to low statistical association with any specific strategy construct.

A total of 18 individual tactics were removed from the dataset when performing exploratory factor analysis. The 18 tactics were removed due to communalities that were below 0.20, indicating very low association with an underlying construct. Many of these tactics that were not included in the inferential statistical analysis were some of the most commonly

implemented tactics and considered to be staples of a comprehensive financial management response such as increasing tuition and fees, utilizing federal stimulus funds, initiating targeted cuts, and allocating funds primarily based on program needs. Because many of these tactics are critical components of financial management response for institutions of higher education, there may be limited utility for practitioners in research findings that are based on financial management response that is reduced to a smaller number of factors.

Recommendations for Policy and Practice

Based upon the findings and conclusions of the current study, the researcher makes the following recommendations for policy and practice related to public higher education financial management response:

States should stabilize the appropriation process in order to allow institutions to create better long-term tuition strategies with relative assurance of appropriated funds.

Results from the survey indicated that increasing student tuition and fees was the most common and most impactful tactic implemented to combat the loss of state appropriation. The burden for students and families is increasing as tuition continues to rise. Creative solutions are needed by state policymakers to stabilize the appropriation process in order for institutions to create a financial management response with emphasis on strategies other than tuition increases. Solutions that seek to create long-term averages or a greater commitment to funds in an attempt to level out the funding process in fiscal years where the overall state budget is lower. Obviously, no group of policymakers or campus leaders could predict such a substantial change in the funds available from 2008 to 2009, but a longer-term approach could begin to meet the needs of institutions in the planning and development of tuition strategies.

Institutions should evaluate the relative fiscal impact of financial management strategies and tactics in order to create a comprehensive response that is less dependent on student tuition and fee hikes.

Chief financial officers indicated that implementing financial management tactics according to the perceived highest level of fiscal impact was important. Of those responding, 26% ranked the perceived level of highest fiscal impact as the most important factor in the development of financial management response. However, closer examination of the most implemented tactics revealed that many tactics most commonly implemented had relatively low fiscal impact. Certainly, the overall combination of tactics implemented may have collectively achieved fiscal stability, but it appears that other tactics rated more fiscally impactful could be implemented more often in an attempt to reduce the dependence on tuition increases. Public higher education institutions experienced tremendous financial pressure resulting from the significant loss of state appropriations and clearly had to implement an array of financial management tactics to cope. Tuition and fee increases were not the singular focus of financial management response, but were a primary component of the response for each institution. Tuition increases cannot be the sustaining factor for institutions without negative consequences. Outcomes from rising tuition range from limited access to career choice implications (Cantor & Courant, 2003; Reindl & Brower, 2001; Trostel, 2009; Zhang, 2009). Given the current burden already placed on students and families and the expected negative consequences from continued increases in tuition, it is imperative that institutions seek all options and alternatives in the development of a response to fiscal decline.

Leadership should involve campus constituents in the decision-making process for crafting a financial management response to eroding state appropriations.

Public higher education finance has experienced a cyclical pattern of financial support, where gains in public funding are eroded after each recession (Zumeta, 2009). Institutional leaders believe that future funding returns were a bleak proposition (Keller, 2009). With a clear frame of reference that supports future periods of substantial decline similar to the 2008 to 2009 recurring at some point in the future, campus leaders should involve campus constituents in financial management response development. It is important to plan ahead given what the known prospects are for a fiscal decline event in the future. Involving other campus leaders in the process allows for the development of a broader response and allows creative solutions to be explored. Chief financial officers indicated that the two primary means of understanding and knowing about financial management tactics was their own personal experiences and decision making, as well as recommendations and discussions with colleagues from their institution.

Chief financial officers indicated very clearly that they were not concerned with campus politics in their decision-making processes so the involvement of campus participants points to a rational approach whereby CFOs wanted to make choices that avoided negative consequences, even when the negative consequences would be experienced by other institutional actors. This supports Simon's (1956) assertions that a key component to rational choice is avoiding negative consequences. Further, it appears that chief financial officers sought out recommendations from other campus personnel in an attempt to gather any available information before making a decision on financial management response, which was addressed by Hechter and Kanazawa (1997) in their discussion on rational choice theory. Clearly, when other colleagues were involved in the process, it was a valuable tool for the institution as evidenced by chief financial officers indicating that recommendations and discussion with colleagues at their institution

played an important role in the implementation, knowledge, and understanding of financial management response.

Professional trade groups should focus on more research and information dissemination related to financial management responses and strategies that stabilize campus budgets without increasing the burden on students and families.

Availability of information and the lack of meaningful insight into the complexities of financial management response likely caused chief financial officers to report that conferences, trade groups, and recommendations from colleagues at other institutions provided little influence in the understanding of financial management tactics. The potential exists for current groups to provide valuable knowledge and disseminate information regarding creative approaches, success stories, outside-the-box ideas, case studies, and recommendations on implementing a financial management response. Professional groups and organizations should look towards opportunities that take advantage of lower-cost and less intrusive methods of reaching a core audience of chief financial officers through interactive media, webinars, and other continuing professional education options. Additionally, conferences with focused and intensive content could be utilized to address financial management concerns with more efficiency and clarity. In many regards, dispersing beneficial information to institutions and chief financial officers may allow for a more comprehensive approach and provide some associated best practices among institutions.

Recommendations for Future Research

Based upon the findings and conclusions of the current study, the researcher makes the following recommendations for future research:

Future studies should investigate how institutions link their strategic plan with financial management response during times of economic expansion and contraction.

A number of chief financial officers reported that the most critical aspect of the development of a financial management response was to implement tactics according to the institutional strategic plan. As discussed by Reindl & Brower (2001), institutional missions can be redirected, purposefully or inadvertently, in periods of changing revenue patterns. Keeping the institutional strategic plan at the core of the financial management decision-making processes aids institutions in maintaining focus on pre-determined objectives. While 31 chief financial officers indicated they did rely heaviest on the strategic plan to select which tactics to implement, the majority of CFOs indicated they did not. There are many possible reasons for considering other factors, such as fiscal impact, intrusiveness to campus constituents, and political impact, when creating a response to eroding fiscal conditions. However, some cases could exist where it was unclear or unknown how to align an institutional strategic plan to a financial response that is restrictive in nature, as opposed to a financial management strategy during conditions of growth. Further exploration of the process would provide institutional leaders insight into methods that other institutions have found to be successful.

A future study, using primarily qualitative measures, should be conducted to better evaluate and understand the decision-making processes related to the development of financial management responses at institutions of public higher education.

Participants for the current study answered closed-ended questions via an electronic survey, which provided valuable and detailed information concerning the battle of each campus against the loss of state appropriations. However, the nature of quantitative research is different than that of qualitative research (Creswell, 2009). In an effort to add additional knowledge to the

information base on financial management response, future studies should allow for open-ended questions, interviews with multiple campus leaders, or case studies. Although there would be fewer institutions included in a future qualitative study, the proposed method would allow for the collection of a different type of information and more in-depth examinations of specific institutions. Additional explorations into the field of public higher education finance across a variety of research approaches would lead to better understanding.

A future study should compare the perceptions of chief financial officers with those of other institutional leaders.

The current study involved chief financial officers and their perceptions on financial management response and the degree to which they were satisfied with achieved fiscal stability during difficult financial conditions. The study did not investigate or address the perceptions of other institutional leaders that were linked indirectly to the implemented financial management response. Follow up studies could include data collection from Provosts and Deans to determine the effect of implemented tactics on the activities and operating abilities of their piece of the institutions structure. Chief financial officers in the current study indicated they were relatively well satisfied with the fiscal stability on campus and also reported that tactics, to a certain degree, were considered in conjunction with how intrusive they might be for campus constituents. Despite the concern for the impact on other campus leaders when approaching financial management response, the current study did not explore the impact of individual tactics from this perspective. Information gained from this proposed type of study would be best utilized when evaluated against the chief financial officers rating of the fiscal impact of each tactic. The data combined together would create an extensive resource that could be used in the decision-making process.

A future study should more closely examine the distribution practices and uses of federal stimulus funds to public higher education during the 2009, 2010, and 2011 fiscal years.

With federal stimulus funds surpassing more than 2.3 billion for fiscal year 2009 (SHEF, 2010), many institutions reported utilizing the additional revenue with high fiscal impact. Of the 75 responses, 26 reported administering the temporary funds on their campus with high fiscal impact. However, more institutions reported they implemented the use of federal stimulus funds with negative fiscal impact (1), no fiscal impact (6), low fiscal impact (11), and moderate fiscal impact (14). An additional 17 chief financial officers indicated their institution did not have the benefit of utilizing stimulus funds. The reasons are unknown and unexplored as to why so many institutions were not able to achieve greater fiscal impact and stability from federal stimulus funds. Many institutions may not have been granted the autonomy to spend funds they wanted, or perhaps each institution just simply did not receive a substantial enough portion of funds to make a real impact. A future study should investigate the processes for distributing stimulus funds and the manner in which those funds were utilized within public higher education.

Future studies should focus on the financial management response at institutions that experienced continued erosion in state appropriations from fiscal years 2009 to 2010 and 2010 to 2011.

Future studies should examine financial management response after multiple periods of environmental decline. As economic conditions were slow to recover after the recessionary period of 2008, many institutions included in the current study experienced further erosion of state appropriations in subsequent years following the 2008 to 2009 period. As Dougherty and Klase (2009) found, financial management response becomes more drastic as fiscal conditions worsen. Still, other researchers have concluded that response follows no particular pattern

(Bartle, 1996; Dommel & Rasey, 1989; Marando, 1990; Pammer, 1990). The additional data on the financial management strategies and tactics implemented at the same institutions in extended periods of decline would provide for a better understanding of the complex relationship between fiscal pressure and the pattern of decision-making by campus leaders over time.

Future studies should further investigate the reliability and validity of the researcher-created survey instrument, and examine the underlying constructs of financial management response.

The current study used a researcher-created survey instrument to collect and identify the financial management tactics implemented to assist chief financial officers in offsetting the loss of state appropriations. In addition, underlying factors were identified through exploratory factor analysis. However, initial exploratory factor analysis excluded several financial management tactics that were some of the most commonly implemented tactics such as increasing tuition and fees and initiating targeted cuts. Future studies should continue to investigate the reliability and validity of the researcher-created survey instrument to assist in the further development of a comprehensive instrument that can be used to explore financial management at institutions across a variety of institutional characteristics and classifications. This would increase the tools available to study public higher education finance and provide a standardized method of data collection.

Concluding Thoughts

This study contributed to the scholarly literature on higher education financial management, specifically to the literature focused on financial management at public four-year institutions, by exploring the institutional financial management response to offset the erosion of state appropriations during the most recent economic downturn. The study also examined the

perceptions of chief financial officers ability to maintain fiscal stability while coping with the substantial reductions in state appropriations being experienced from 2008 to 2009. In addition, the study set forth to identify the influence of information channels on the understanding and awareness of financial management tactics for chief financial officers.

Institutions relied on the combination of several tactics to help maintain fiscal stability. Increasing student tuition and fees was the most commonly implemented tactic and it was also considered by CFOs to have the most fiscal impact for their campus. Utilizing federal stimulus funds were also rated as fiscally impactful, as was faculty and staff furloughs and salary freezes. Overall, chief financial officers implemented tactics related to expenditure controls and personnel most frequently. Tactics related to course and enrollment management was the least relied upon strategy type. Chief financial officers at large institutions, those with enrollments above 20,000 students, reported a much higher reliance on revenue enhancing strategies than small or medium sized institutions. The overall combination of tactics implemented achieved the desired level of fiscal stability for the majority of CFOs. Personal experience, along with recommendations and discussions with colleagues at their own institution, was considered to be the most influential channels of information for understanding different financial management tactics.

Even with a variety of financial management tactics implemented to offset the loss of state appropriations, institutions had to rely heavily on increasing student tuition and fees. Despite the reported fiscal stability achieved at institutions, students and families will carry a greater burden through higher costs to attend public higher education. States should carefully consider the impact of state appropriations on both students and institutions, and work to create long-term approaches that stabilize the funding process. Institutions should work to create

comprehensive plans for financial management response that reduce the dependence on tuition and fee increases. All parties must work together to ensure that access to systems of higher education are protected and that students continue to seek the opportunities that education creates.

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APPENDICES

Appendix A

Financial Management Strategies and Tactics

Strategy	Strategy Type	Higher Education				Government		Nonprofits						
		Garrett 2007	Keller 2009	Chaffee 1984	Riley 1994	Morris-Olson 1995	Ganzer 2000	Novak 2009	Panner 1990	Donnel & Rasay 1989	Marando 1990	Doughtery & Klase 2009	Maher & Deller 2007	Bullinger 1987
Collapse course sections into fewer, larger sections	Course & Enrollment Mgmt	*						*						
Eliminate courses	Course & Enrollment Mgmt	*						*						
Eliminate programs	Course & Enrollment Mgmt	*						*						*
Provide program delivery primarily based on cost	Course & Enrollment Mgmt	*		*										
Increase enrollment in selected programs	Course & Enrollment Mgmt	*		*				*						
Limit institutional enrollment	Course & Enrollment Mgmt	*		*				*						
Increase enrollment in specific areas (out-of-state students, online students, etc.)	Course & Enrollment Mgmt	*		*				*						
Increase institutional enrollment	Course & Enrollment Mgmt			*										
Reduce number or amount of scholarships	Course & Enrollment Mgmt			*										
Increase student/faculty ratio	Course & Enrollment Mgmt	*		*										
Reduce financial commitment to athletic activities	Expenditure Control			*				*						
Reduce funding available for professional development and travel	Expenditure Control	*	*	*	*			*	*	*	*		*	
Reduce/restrict operating funds	Expenditure Control		*	*	*	*		*						
Initiate across-the-board-cuts	Expenditure Control	*		*	*	*		*	*				*	*
Initiate targeted cuts	Expenditure Control													*
Defer equipment purchases	Expenditure Control	*		*				*						*
Defer maintenance	Expenditure Control	*	*	*	*	*		*						*
Reduce funding and staffing for library services and student services	Expenditure Control	*		*										
Allocate funds primarily based on program needs	Expenditure Control	*		*										
Reduce funding of student-life activities	Expenditure Control													
Invest in energy savings and efficiency measures	Operational Efficiency	*	*	*	*									*
Reduce and/or modify the scope of activities of the institution	Operational Efficiency	*		*										
Use long-range strategic planning for management of budgetary constraints	Operational Efficiency			*	*	*								
Outsource operations and services previously provided internally	Operational Efficiency	*	*	*				*	*					*
Increase reliance on technology in teaching and learning	Operational Efficiency	*		*										
Re-engineer work tasks	Operational Efficiency	*		*										
Implement TQM	Operational Efficiency	*		*										
Institute growth by substitution rather than by addition	Operational Efficiency	*		*										
Emphasize teamwork across the departments to accomplish institutional objectives	Operational Efficiency	*		*										
Apply break-even analysis to programs	Operational Efficiency													
Increase the number of adjunct faculty	Personnel	*		*										
Initiate a hiring freeze	Personnel	*		*	*	*		*	*	*	*	*	*	*
Reduce number of faculty	Personnel	*		*	*									
Reduce permanent staff positions	Personnel			*										*
Lay-off personnel	Personnel			*				*						*
Implement or enhance an early or phased retirement program	Personnel	*	*	*				*						*
Faculty/staff salary freeze	Personnel							*						*
Reduce number of administrative positions	Personnel	*		*										
Mandate faculty/staff furloughs	Personnel			*										*
Reduced faculty/staff through nonreplacement	Personnel			*	*			*						*
Utilize federal stimulus funds	Revenue Enhancement			*										
Increase fund-raising and development efforts	Revenue Enhancement	*		*	*	*		*						
Increase incidental fees (non-academic related: i.e. parking fees, etc.)	Revenue Enhancement	*	*					*	*	*	*	*	*	*
Utilize new funding sources or revenue streams.	Revenue Enhancement	*	*					*						
Increase student tuition and fees (academic related fees)	Revenue Enhancement	*		*	*	*								
Increase use of restricted funds	Revenue Enhancement													
Request that donors allow restricted gifts to be used for other purposes	Revenue Enhancement							*						
Short-term borrowing	Revenue Enhancement												*	*
Long-term borrowing	Revenue Enhancement													*
Differential tuition for expensive programs	Revenue Enhancement												*	

Appendix B
Listing of Institutions in Study Population

Institution	State	Region	Enrollment Size	Appropriations	Appropriations	Change	% Reduction
Alabama A & M University	AL	South	5-000 - 9-999	52,786,936	42,451,040	-10,335,896	-19.58%
Alabama State University	AL	South	5-000 - 9-999	49,166,559	45,730,267	-3,436,292	-6.99%
Albany State University	GA	South	1-000 - 4-999	23,105,463	21,748,450	-1,357,013	-5.87%
Appalachian State University	NC	South	10-000 - 19-999	130,572,749	115,211,236	-15,361,513	-11.76%
Arizona State University	AZ	West	20-000 and abov	468,406,000	402,452,000	-65,954,000	-14.08%
Arkansas State University-Main Campus	AR	South	10-000 - 19-999	67,365,647	62,555,291	-4,810,356	-7.14%
Athens State University	AL	South	1-000 - 4-999	15,148,593	12,288,445	-2,860,148	-18.88%
Auburn University at Montgomery	AL	South	5-000 - 9-999	31,026,696	24,830,698	-6,195,998	-19.97%
Auburn University Main Campus	AL	South	20-000 and abov	305,914,686	236,860,398	-69,054,288	-22.57%
Austin Peay State University	TN	South	10-000 - 19-999	37,180,200	34,201,215	-2,978,985	-8.01%
Black Hills State University	SD	Midwest	1-000 - 4-999	8,435,498	7,813,216	-622,282	-7.38%
Bridgewater State College	MA	Northeast	10-000 - 19-999	51,155,477	43,924,715	-7,230,762	-14.13%
California Maritime Academy	CA	West	Under 1-000	21,510,969	16,082,808	-5,428,161	-25.23%
California Polytechnic State University-San Luis Obispo	CA	West	10-000 - 19-999	152,100,477	107,225,555	-44,874,922	-29.50%
California State Polytechnic University-Pomona	CA	West	20-000 and abov	146,744,749	103,767,964	-42,976,785	-29.29%
California State University-Bakersfield	CA	West	5-000 - 9-999	62,314,950	44,067,319	-18,247,631	-29.28%
California State University-Channel Islands	CA	West	1-000 - 4-999	47,402,176	36,041,705	-11,360,471	-23.97%
California State University-Chico	CA	West	10-000 - 19-999	122,235,835	86,342,461	-35,893,374	-29.36%
California State University-Dominguez Hills	CA	West	10-000 - 19-999	71,929,147	51,885,860	-20,043,287	-27.87%
California State University-East Bay	CA	West	10-000 - 19-999	91,350,150	67,194,035	-24,156,115	-26.44%
California State University-Fresno	CA	West	20-000 and abov	153,215,990	109,296,179	-43,919,811	-28.67%
California State University-Fullerton	CA	West	20-000 and abov	179,652,708	129,953,792	-49,698,916	-27.66%
California State University-Long Beach	CA	West	20-000 and abov	205,479,560	177,237,704	-28,241,856	-13.74%
California State University-Los Angeles	CA	West	20-000 and abov	133,525,691	95,342,801	-38,182,890	-28.60%
California State University-Monterey Bay	CA	West	1-000 - 4-999	53,735,524	38,402,856	-15,332,668	-28.53%
California State University-Northridge	CA	West	20-000 and abov	195,832,161	139,275,832	-56,556,329	-28.88%
California State University-Sacramento	CA	West	20-000 and abov	166,407,459	118,529,730	-47,877,729	-28.77%
California State University-San Bernardino	CA	West	10-000 - 19-999	108,070,284	75,923,976	-32,146,308	-29.75%
California State University-San Marcos	CA	West	5-000 - 9-999	67,071,786	47,961,522	-19,110,264	-28.49%
California State University-Stanislaus	CA	West	5-000 - 9-999	63,449,830	45,210,777	-18,239,053	-28.75%
Central Michigan University	MI	Midwest	20-000 and abov	89,429,789	82,760,500	-6,669,289	-7.46%
Charter Oak State College	CT	Northeast	1-000 - 4-999	2,196,678	2,059,915	-136,763	-6.23%
Citadel Military College of South Carolina	SC	South	1-000 - 4-999	16,895,424	12,886,711	-4,008,713	-23.73%
Clemson University	SC	South	10-000 - 19-999	167,224,064	128,279,159	-38,944,905	-23.29%
Coastal Carolina University	SC	South	5-000 - 9-999	17,671,977	13,524,645	-4,147,332	-23.47%
College of Charleston	SC	South	10-000 - 19-999	36,094,323	27,172,853	-8,921,470	-24.72%
College of William and Mary	VA	South	5-000 - 9-999	52,371,972	49,386,253	-2,985,719	-5.70%
Columbus State University	GA	South	5-000 - 9-999	38,247,603	35,442,788	-2,804,815	-7.33%
CUNY College of Staten Island	NY	Northeast	10-000 - 19-999	59,618,000	55,925,927	-3,692,073	-6.19%
Delta State University	MS	South	1-000 - 4-999	23,833,004	22,556,983	-1,276,021	-5.35%
East Carolina University	NC	South	20-000 and abov	267,768,989	241,751,813	-26,017,176	-9.72%

East Tennessee State University	TN	South	10-000 - 19-999	98,619,077	92,401,793	-6,217,284	-6.30%
Eastern Michigan University	MI	Midwest	20-000 and abov	84,880,347	78,551,800	-6,328,547	-7.46%
Eastern New Mexico University-Main Campus	NM	West	1-000 - 4-999	34,641,325	32,170,861	-2,470,464	-7.13%
Eastern Oregon University	OR	West	1-000 - 4-999	19,519,249	13,499,253	-6,019,996	-30.84%
Fayetteville State University	NC	South	5-000 - 9-999	57,072,855	50,125,659	-6,947,196	-12.17%
Ferris State University	MI	Midwest	10-000 - 19-999	54,280,354	50,228,100	-4,052,254	-7.47%
Fitchburg State College	MA	Northeast	5-000 - 9-999	34,063,661	29,415,783	-4,647,878	-13.64%
Florida Agricultural and Mechanical University	FL	South	10-000 - 19-999	124,324,821	114,569,467	-9,755,354	-7.85%
Florida Atlantic University	FL	South	20-000 and abov	189,255,782	172,035,838	-17,219,944	-9.10%
Florida Gulf Coast University	FL	South	10-000 - 19-999	56,473,052	51,851,691	-4,621,361	-8.18%
Florida International University	FL	South	20-000 and abov	239,179,283	227,082,151	-12,097,132	-5.06%
Fort Valley State University	GA	South	1-000 - 4-999	22,799,393	21,469,244	-1,330,149	-5.83%
Framingham State College	MA	Northeast	5-000 - 9-999	31,269,160	27,188,410	-4,080,750	-13.05%
Francis Marion University	SC	South	1-000 - 4-999	20,362,073	14,693,807	-5,668,266	-27.84%
George Mason University	VA	South	20-000 and abov	135,567,184	127,718,566	-7,848,618	-5.79%
Georgia Institute of Technology-Main Campus	GA	South	20-000 and abov	275,144,403	254,937,701	-20,206,702	-7.34%
Georgia Southern University	GA	South	10-000 - 19-999	92,448,227	87,533,949	-4,914,278	-5.32%
Georgia Southwestern State University	GA	South	1-000 - 4-999	14,337,080	12,336,204	-2,000,876	-13.96%
Georgia State University	GA	South	20-000 and abov	228,180,842	215,005,880	-13,174,962	-5.77%
Grand Valley State University	MI	Midwest	20-000 and abov	69,278,200	64,021,400	-5,256,800	-7.59%
Humboldt State University	CA	West	5-000 - 9-999	77,128,158	54,832,476	-22,295,682	-28.91%
Jacksonville State University	AL	South	5-000 - 9-999	49,306,100	39,461,888	-9,844,212	-19.97%
Lake Superior State University	MI	Midwest	1-000 - 4-999	13,993,077	13,175,727	-817,350	-5.84%
Lander University	SC	South	1-000 - 4-999	11,832,939	8,756,048	-3,076,891	-26.00%
Maine Maritime Academy	ME	Northeast	Under 1-000	8,835,474	8,377,939	-457,535	-5.18%
Massachusetts College of Liberal Arts	MA	Northeast	1-000 - 4-999	19,100,846	16,673,081	-2,427,765	-12.71%
Massachusetts Maritime Academy	MA	Northeast	1-000 - 4-999	18,772,124	16,157,942	-2,614,182	-13.93%
Michigan State University	MI	Midwest	20-000 and abov	385,748,300	356,992,900	-28,755,400	-7.45%
Middle Tennessee State University	TN	South	20-000 and abov	101,759,700	93,790,584	-7,969,116	-7.83%
Mississippi University for Women	MS	South	1-000 - 4-999	15,854,067	14,992,403	-861,664	-5.43%
New College of Florida	FL	South	Under 1-000	18,822,952	17,190,982	-1,631,970	-8.67%
New Mexico Highlands University	NM	West	1-000 - 4-999	35,511,581	33,241,294	-2,270,287	-6.39%
New Mexico Institute of Mining and Technology	NM	West	1-000 - 4-999	45,271,825	42,178,465	-3,093,360	-6.83%
North Carolina A & T State University	NC	South	10-000 - 19-999	99,373,082	85,994,863	-13,378,219	-13.46%
North Carolina Central University	NC	South	5-000 - 9-999	85,065,655	75,836,451	-9,229,204	-10.85%
North Carolina State University at Raleigh	NC	South	20-000 and abov	487,744,042	448,754,067	-38,989,975	-7.99%
North Georgia College & State University	GA	South	5-000 - 9-999	26,792,332	24,893,499	-1,898,833	-7.09%
Northern Arizona University	AZ	West	20-000 and abov	153,578,450	135,600,125	-17,978,325	-11.71%
Northern Michigan University	MI	Midwest	5-000 - 9-999	50,389,700	46,633,200	-3,756,500	-7.45%
Oakland University	MI	Midwest	10-000 - 19-999	56,697,300	52,452,200	-4,245,100	-7.49%
Oregon Institute of Technology	OR	West	1-000 - 4-999	22,526,082	15,949,257	-6,576,825	-29.20%
Oregon State University	OR	West	20-000 and abov	172,671,946	140,240,007	-32,431,939	-18.78%
Portland State University	OR	West	20-000 and abov	79,072,126	60,383,960	-18,688,166	-23.63%
Prairie View A & M University	TX	South	5-000 - 9-999	65,598,074	61,125,216	-4,472,858	-6.82%
Rhode Island College	RI	Northeast	5-000 - 9-999	44,346,721	39,895,044	-4,451,677	-10.04%
Rutgers University-New Brunswick	NJ	Northeast	20-000 and abov	476,511,000	450,134,000	-26,377,000	-5.54%

Saginaw Valley State University	MI	Midwest	10-000 - 19-999	30,981,000	28,639,800	-2,341,200	-7.56%
Salem State College	MA	Northeast	10-000 - 19-999	52,537,178	46,587,268	-5,949,910	-11.33%
San Diego State University	CA	West	20-000 and abov	222,283,362	155,817,877	-66,465,485	-29.90%
San Francisco State University	CA	West	20-000 and abov	172,326,533	122,308,185	-50,018,348	-29.03%
San Jose State University	CA	West	20-000 and abov	170,265,317	121,223,739	-49,041,578	-28.80%
Shippensburg University of Pennsylvania	PA	Northeast	5-000 - 9-999	34,754,301	32,910,403	-1,843,898	-5.31%
Sonoma State University	CA	West	5-000 - 9-999	64,714,997	46,273,520	-18,441,477	-28.50%
South Carolina State University	SC	South	1-000 - 4-999	31,677,606	21,848,609	-9,828,997	-31.03%
Southern Connecticut State University	CT	Northeast	10-000 - 19-999	74,712,353	70,874,136	-3,838,217	-5.14%
Southern Oregon University	OR	West	5-000 - 9-999	21,813,716	14,178,767	-7,634,949	-35.00%
Southern University at New Orleans	LA	South	1-000 - 4-999	16,576,070	15,572,008	-1,004,062	-6.06%
Southern Utah University	UT	West	5-000 - 9-999	34,086,758	31,185,490	-2,901,268	-8.51%
SUNY at Albany	NY	Northeast	10-000 - 19-999	193,891,526	170,071,041	-23,820,485	-12.29%
SUNY College of Technology at Delhi	NY	Northeast	1-000 - 4-999	21,616,917	20,019,074	-1,597,843	-7.39%
Tennessee State University	TN	South	5-000 - 9-999	50,551,800	44,259,635	-6,292,165	-12.45%
Tennessee Technological University	TN	South	10-000 - 19-999	53,443,400	49,734,210	-3,709,190	-6.94%
The University of Alabama	AL	South	20-000 and abov	199,417,373	156,521,464	-42,895,909	-21.51%
The University of Tennessee	TN	South	20-000 and abov	450,791,685	422,726,000	-28,065,685	-6.23%
The University of Tennessee at Chattanooga	TN	South	10-000 - 19-999	47,860,897	44,214,691	-3,646,206	-7.62%
The University of Tennessee-Martin	TN	South	5-000 - 9-999	35,962,300	31,846,143	-4,116,157	-11.45%
The University of West Florida	FL	South	10-000 - 19-999	76,836,830	65,006,959	-11,829,871	-15.40%
Thomas Edison State College	NJ	Northeast	10-000 - 19-999	5,951,750	5,527,250	-424,500	-7.13%
Troy University	AL	South	20-000 and abov	62,458,071	49,034,913	-13,423,158	-21.49%
University at Buffalo	NY	Northeast	20-000 and abov	476,426,851	431,675,977	-44,750,874	-9.39%
University of Alabama at Birmingham	AL	South	10-000 - 19-999	358,088,951	284,944,757	-73,144,194	-20.43%
University of Alabama in Huntsville	AL	South	5-000 - 9-999	58,100,801	45,861,449	-12,239,352	-21.07%
University of Arizona	AZ	West	20-000 and abov	445,018,000	371,488,000	-73,530,000	-16.52%
University of California-Berkeley	CA	West	20-000 and abov	525,245,000	430,338,000	-94,907,000	-18.07%
University of California-Davis	CA	West	20-000 and abov	474,468,000	389,411,000	-85,057,000	-17.93%
University of California-Irvine	CA	West	20-000 and abov	261,677,000	217,816,000	-43,861,000	-16.76%
University of California-Los Angeles	CA	West	20-000 and abov	672,298,000	551,553,000	-120,745,000	-17.96%
University of California-Riverside	CA	West	10-000 - 19-999	163,549,000	134,730,000	-28,819,000	-17.62%
University of California-San Diego	CA	West	20-000 and abov	318,902,000	257,642,000	-61,260,000	-19.21%
University of California-Santa Barbara	CA	West	20-000 and abov	217,035,000	177,285,000	-39,750,000	-18.32%
University of California-Santa Cruz	CA	West	10-000 - 19-999	133,506,000	109,655,000	-23,851,000	-17.87%
University of Florida	FL	South	20-000 and abov	662,574,000	620,968,000	-41,606,000	-6.28%
University of Georgia	GA	South	20-000 and abov	471,177,285	445,084,744	-26,092,541	-5.54%
University of Houston-Victoria	TX	South	1-000 - 4-999	19,525,231	18,252,372	-1,272,859	-6.52%
University of Iowa	IA	Midwest	20-000 and abov	339,785,000	290,677,000	-49,108,000	-14.45%
University of Maine at Farmington	ME	Northeast	1-000 - 4-999	10,992,000	10,362,000	-630,000	-5.73%
University of Maine at Presque Isle	ME	Northeast	1-000 - 4-999	6,852,000	6,466,000	-386,000	-5.63%
University of Massachusetts Amherst	MA	Northeast	20-000 and abov	286,298,000	258,409,000	-27,889,000	-9.74%
University of Massachusetts-Boston	MA	Northeast	10-000 - 19-999	109,263,000	93,175,000	-16,088,000	-14.72%
University of Massachusetts-Dartmouth	MA	Northeast	5-000 - 9-999	66,166,000	55,876,000	-10,290,000	-15.55%
University of Massachusetts-Lowell	MA	Northeast	10-000 - 19-999	97,490,000	82,032,000	-15,458,000	-15.86%
University of Memphis	TN	South	20-000 and abov	126,872,847	117,560,239	-9,312,608	-7.34%

University of Michigan-Ann Arbor	MI	Midwest	20-000 and abov	353,058,000	326,674,000	-26,384,000	-7.47%
University of Michigan-Dearborn	MI	Midwest	5-000 - 9-999	27,609,000	25,548,000	-2,061,000	-7.46%
University of Michigan-Flint	MI	Midwest	5-000 - 9-999	23,336,000	21,594,000	-1,742,000	-7.46%
University of Minnesota-Twin Cities	MN	Midwest	20-000 and abov	661,322,554	621,960,105	-39,362,449	-5.95%
University of Montevallo	AL	South	1-000 - 4-999	24,153,548	19,390,898	-4,762,650	-19.72%
University of North Alabama	AL	South	5-000 - 9-999	34,875,031	28,475,819	-6,399,212	-18.35%
University of North Carolina at Charlotte	NC	South	20-000 and abov	175,169,465	160,493,260	-14,676,205	-8.38%
University of North Carolina at Greensboro	NC	South	20-000 and abov	156,611,887	138,168,464	-18,443,423	-11.78%
University of North Carolina at Pembroke	NC	South	5-000 - 9-999	57,624,051	50,448,094	-7,175,957	-12.45%
University of North Carolina-Wilmington	NC	South	10-000 - 19-999	100,716,089	86,971,604	-13,744,485	-13.65%
University of North Florida	FL	South	10-000 - 19-999	90,870,816	84,481,861	-6,388,955	-7.03%
University of Oregon	OR	West	20-000 and abov	80,126,624	60,581,643	-19,544,981	-24.39%
University of Rhode Island	RI	Northeast	10-000 - 19-999	75,389,594	62,319,257	-13,070,337	-17.34%
University of South Alabama	AL	South	10-000 - 19-999	139,737,000	108,451,000	-31,286,000	-22.39%
University of South Carolina-Aiken	SC	South	1-000 - 4-999	11,717,094	8,992,543	-2,724,551	-23.25%
University of South Carolina-Columbia	SC	South	20-000 and abov	188,308,819	141,508,821	-46,799,998	-24.85%
University of South Carolina-Upstate	SC	South	5-000 - 9-999	15,362,805	11,735,977	-3,626,828	-23.61%
University of South Florida-Main Campus	FL	South	20-000 and abov	368,554,534	297,233,541	-71,320,993	-19.35%
University of Southern Maine	ME	Northeast	5-000 - 9-999	47,033,000	44,459,000	-2,574,000	-5.47%
University of Southern Mississippi	MS	South	10-000 - 19-999	95,113,421	89,817,334	-5,296,087	-5.57%
University of Utah	UT	West	20-000 and abov	294,907,000	266,761,000	-28,146,000	-9.54%
University of Virginia-Main Campus	VA	South	20-000 and abov	165,980,197	153,385,911	-12,594,286	-7.59%
University of West Alabama	AL	South	5-000 - 9-999	17,058,698	13,529,315	-3,529,383	-20.69%
University of Wisconsin-River Falls	WI	Midwest	5-000 - 9-999	28,633,202	26,464,445	-2,168,757	-7.57%
Utah State University	UT	West	10-000 - 19-999	149,900,742	137,304,183	-12,596,559	-8.40%
Valdosta State University	GA	South	10-000 - 19-999	53,079,000	50,303,199	-2,775,801	-5.23%
Virginia Military Institute	VA	South	1-000 - 4-999	14,562,865	13,787,087	-775,778	-5.33%
Virginia Polytechnic Institute and State University	VA	South	20-000 and abov	269,766,822	255,422,521	-14,344,301	-5.32%
Wayne State University	MI	Midwest	20-000 and abov	239,026,890	221,231,257	-17,795,633	-7.45%
Weber State University	UT	West	20-000 and abov	68,618,240	64,166,040	-4,452,200	-6.49%
West Virginia State University	WV	South	1-000 - 4-999	15,788,484	12,642,590	-3,145,894	-19.93%
Western Carolina University	NC	South	5-000 - 9-999	89,055,513	84,000,004	-5,055,509	-5.68%
Western Michigan University	MI	Midwest	20-000 and abov	122,383,400	113,243,200	-9,140,200	-7.47%
Western New Mexico University	NM	West	1-000 - 4-999	22,391,628	20,734,378	-1,657,250	-7.40%
Western Oregon University	OR	West	5-000 - 9-999	20,566,569	16,467,148	-4,099,421	-19.93%
Westfield State College	MA	Northeast	5-000 - 9-999	28,741,286	24,677,747	-4,063,539	-14.14%
William Paterson University of New Jersey	NJ	Northeast	10-000 - 19-999	63,786,589	60,349,858	-3,436,731	-5.39%
Winston-Salem State University	NC	South	5-000 - 9-999	69,647,121	61,443,535	-8,203,586	-11.78%
Winthrop University	SC	South	5-000 - 9-999	25,619,899	18,548,609	-7,071,290	-27.60%
Worcester State College	MA	Northeast	5-000 - 9-999	29,809,731	25,909,130	-3,900,601	-13.08%

Appendix C

January 24, 2012

Office for Research
Institutional Review Board for the
Protection of Human Subjects

Adam Tate
ELPTS
College of Education
The University of Alabama



Re: IRB # 12-OR-020 "The Chief Financial Officer's Perception of Financial Management Responses to Eroding State Appropriations"

Dear Mr. Tate:

The University of Alabama Institutional Review Board has granted approval for your proposed research.

Your application has been given expedited approval according to 45 CFR part 46. You have also been granted the requested waiver of documentation of informed consent. Approval has been given under expedited review category 7 as outlined below:

(7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

Your application will expire on January 23, 2013. If your research will continue beyond this date, complete the relevant portions of the IRB Renewal Application. If you wish to modify the application, complete the Modification of an Approved Protocol Form. Changes in this study cannot be initiated without IRB approval, except when necessary to eliminate apparent immediate hazards to participants. When the study closes, complete the appropriate portions of the IRB Study Closure Form.

Should you need to submit any further correspondence regarding this proposal, please include the above application number.

Good luck with your research.

Sincerely,



Carpathia T. Myles, MSM, CIM
Director & Research Compliance Officer
Office for Research Compliance
The University of Alabama

358 Rose Administration Building
Box 870127
Tuscaloosa, Alabama 35487-0127
(205) 348-8461
FAX (205) 348-7189
TOLL FREE (877) 820-3066

Appendix D

TEXT OF RECRUITMENT INVITATION E-MAIL TO BE SENT TO POTENTIAL STUDY PARTICIPANTS

Dear Colleague,

You are invited to participate in a research study conducted by Adam Tate, a doctoral student in the Higher Education Administration program at the University of Alabama. The purpose of this research is to better understand the financial management response of public higher education institutions to offset the loss of state appropriations. Your institution was selected to participate because revenue received from state appropriations at your institution dropped by at least 5% from fiscal year 2008 to fiscal year 2009.

You will not be asked to provide your name or any personally identifiable information. Protecting your privacy is of utmost concern. Your identity will not be known and survey submissions are completely anonymous. A copy of the informed consent is attached that provides details about the study, its purpose, and rights of the participant.

Your participation will involve answering questions related to the implementation of financial management tactics.

The amount of time required for participation is estimated to be 10-15 minutes.

Please find attached the survey link and take a few moments to complete the questionnaire:

Thank you in advance for participating in this study. If you are interested in receiving a copy of the results of this study when they are available, please send an email to Adam Tate, at atake@crimson.ua.edu

Adam Tate

Appendix E

TEXT OF FOLLOW UP SURVEY INVITATION E-MAIL TO BE SENT TO POTENTIAL STUDY PARTICIPANTS

Dear Colleague,

At this time, I have not yet received enough responses to continue with my research. I am contacting you again in hopes that you will take a couple of minutes to complete the online survey regarding the institutional financial management response on your campus. If you have already completed the survey, I sincerely thank you for your assistance and apologize for the repeated communications.

Your institution was selected to participate because revenue received from state appropriations at your institution dropped by at least 5% from fiscal year 2008 to fiscal year 2009.

Please find attached the survey link:

Your responses are anonymous in hopes of encouraging participation.

Thanks again for taking time to complete this survey. If you are interested in receiving a copy of the results of this study when they are available, please send an email to Adam Tate, at atare@crimson.ua.edu.

Adam Tate

Appendix F

Consent Form

Study Title: Institutional Financial Management Strategies and Tactics in Response to Eroding State Appropriations

You are invited to participate in a research study tentatively titled “Institutional Financial Management Strategies and Tactics in Response to Eroding State Appropriations.” This study is being conducted by Mr. Adam Tate, a doctoral degree candidate in the Department of Higher Education Administration at the University of Alabama. Mr. Tate is being supervised by Dr. David E. Hardy, Associate Dean for Research and Service and Associate Professor of Higher Education in the College of Education at The University of Alabama. Because this study is a partial fulfillment of degree requirements, Mr. Tate is not receiving any salary or financial aid for completing this project.

What is this study about?

The intent of this quantitative study is to gain an understanding of the institutional financial management strategies and tactics being developed and implemented at public four-year institutions in response to the erosion of state appropriations as a key component to the revenue base. The intent is to investigate, through a survey response instrument, the strategies and tactics put in place to aid colleges and universities in sustaining their financial well-being while maintaining pursuit of institutional missions.

Why is this study important?

The results of this study will provide critical information as to institutional response to the erosion of state appropriations and will provide the public and policymakers detailed insight into the strategies and tactics implemented at public four-year institutions experiencing significant losses in state appropriations. Further, a wide-ranging catalog of financial strategies and tactics, along with the fiscal impact of those strategies and tactics, will be available for institutions who have not yet experienced fiscal erosion, but who may soon experience the challenges associated with the loss of state appropriations.

Why have I been asked to take part in this study?

You have been asked to take part in this study because you are the chief financial or business officer at a public four-year institution that experienced a loss of state appropriations of at least 5% from 2008 to 2009.

How many other people will be in this study?

A total of 173 public four-year institutions have been invited to participate.

What will I be asked to do in this study?

If you agree to be in this study, you will be asked to complete a web survey involving questions about financial management strategies and tactics.

How much time will I spend in the study?

The survey should take approximately 10 minutes to complete.

What are the risks (problems or dangers) for being in this study?

There are no foreseeable risks.

What are the benefits of being in this study?

The benefits of participating in this study are assisting the researcher in gaining a better understanding of the financial management strategies and tactics implemented to offset the erosion of state appropriations.

Will my privacy and confidentiality be protected?

Yes. Your survey responses will be summarized together as a whole. Reports and findings will not identify individual participants or individual institutions. Survey results will be stored securely by the administrator of this survey.

What are the alternatives to being in this study?

The only alternative to participation is not to participate.

What are my rights as a participant?

Your participation is voluntary. If you start the study, you can stop at any time. However, your participation is very important to the success of this research study.

Whom do I call if I have questions or problems?

If you have questions about this study, please contact me, Adam Tate, by phone at (205) 887-1844 or via email at atate@crimson.ua.edu or David Hardy, at (205) 348-6874 or dhardy@bamaed.ua.edu.

If you have questions about your rights as a study participant or at any time become dissatisfied with any aspect of this study, you may anonymously contact Dr. Tanta Myles, The University of Alabama Research Compliance Officer, at (205) 348-8461 or toll free at 1-877-820-3066. You may also ask questions, make a suggestion, or file complaints and concerns through the IRB Outreach Website at http://osp.ua.edu/site/PRCO_Welcome.html. After you participate, you are encouraged to complete the online survey for research participants, which is located at the site above. If you prefer, you may ask Mr. Ward for a hard copy of the survey. Should you have further questions, you may send an e-mail to participantoutreach@bama.ua.edu.

I have read and understand this consent form.

Do you consent to continue?

Appendix G

Informed Consent

Informed Consent:

Study Title: Institutional Financial Management Strategies and Tactics in Response to Eroding State Appropriations

You are invited to participate in a research study titled "The Chief Financial Officer's Perception of Financial Management Responses to Eroding State Appropriations at Public Four-year Institutions." This study is being conducted by Mr. Adam Tate, a doctoral degree candidate in the Department of Higher Education Administration at the University of Alabama. Mr. Tate is being supervised by Dr. David E. Hardy, Associate Dean for Research and Service and Associate Professor of Higher Education in the College of Education at The University of Alabama. Because this study is a partial fulfillment of degree requirements, Mr. Tate is not receiving any salary or financial aid for completing this project.

What is this study about?

The intent of this quantitative study is to gain an understanding of the institutional financial management strategies and tactics being developed and implemented at public four-year institutions in response to the erosion of state appropriations as a key component to the revenue base. The intent is to investigate, through a survey response instrument, the strategies and tactics put in place to aid colleges and universities in sustaining their financial well-being while maintaining pursuit of institutional missions.

Why is this study important?

The results of this study will provide critical information as to institutional response to the erosion of state appropriations and will provide the public and policymakers detailed insight into the strategies and tactics implemented at public four-year institutions experiencing significant losses in state appropriations. Further, a wide-ranging catalog of financial strategies and tactics, along with the fiscal impact of those strategies and tactics, will be available for institutions who have not yet experienced fiscal erosion, but who may soon experience the challenges associated with the loss of state appropriations.

Why have I been asked to take part in this study?

You have been asked to take part in this study because you are the chief financial or business officer at a public four-year institution that experienced a loss of state appropriations of at least 5% from 2008 to 2009.

How many other people will be in this study?

A total of 173 public four-year institutions have been invited to participate.

What will I be asked to do in this study?

If you agree to be in this study, you will be asked to complete a web survey involving questions about financial management strategies and tactics.

How much time will I spend in the study?

The survey should take approximately 10 minutes to complete.

What are the risks (problems or dangers) for being in this study?

There are no foreseeable risks.

What are the benefits of being in this study?

The benefits of participating in this study are assisting the researcher in gaining a better understanding of the financial management strategies and tactics implemented to offset the erosion of state appropriations.

Will my privacy and confidentiality be protected?

Yes. Your survey responses will be summarized together as a whole. Reports and findings will not identify individual participants or individual institutions. Survey results will be stored securely by the administrator of this survey.

What are the alternatives to being in this study?

The only alternative to participation is not to participate.

What are my rights as a participant?

Your participation is voluntary. If you start the study, you can stop at any time. However, your participation is very important to the success of this research study.

Whom do I call if I have questions or problems?

If you have questions about this study, please contact me, Adam Tate, by phone at (205) 887-1844 or via email at atare@crimson.ua.edu or David Hardy, at (205) 348-6874 or dhardy@bamaed.ua.edu.

If you have questions about your rights as a study participant or at any time become dissatisfied with any aspect of this study, you may anonymously contact Dr. Tanta Myles, The University of Alabama Research Compliance Officer, at (205) 348-8461 or toll free at 1-877-820-3066. You may also ask questions, make a suggestion, or file complaints and concerns through the IRB Outreach Website at http://osp.ua.edu/site/PRCO_Welcome.html. After you participate, you are encouraged to complete the online survey for research participants, which is located at the site above. If you prefer, you may ask Mr. Tate for a hard copy of the survey. Should you have further questions, you may send an e-mail to participantoutreach@bama.ua.edu.

I have read and understand this consent form.

Do you consent to continue?

- Yes
- No

CFO screening block

This study focuses on the loss of state appropriations from fiscal year 2008 to 2009. Are you knowledgeable of the financial management response to the reduction of state appropriations at this institution during the 2009 fiscal year? Only ONE response per institution is needed.

- Yes
- No

Please provide the name of an employee or designee at your institution who would be able to complete this survey with information about financial management strategies and tactics implemented during 2009:

Please provide the email address of an employee or designee at your institution who would be able to complete this survey with information about financial management strategies and tactics implemented during 2009:

Demographics

Please indicate your institutional type:

- Baccalaureate level
- Master's level
- Doctoral level

Please indicate which region your institution is located:

- MIDWEST (includes Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin)
- NORTHEAST (includes Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont)
- SOUTH (includes Alabama, Arkansas, Delaware, D.C., Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia)
- WEST (includes Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming)

What is the enrollment size at your institution?

- 0 - 9,999
- 10,000 - 19,999
- 20,000 and above

Please select any of the following institutional status descriptions that apply to your institution (select all that apply):

- HBCU
- Land-grant
- Flagship

What is your gender?

- Male
- Female

What is the highest degree earned?

- No Degree
- Associate's Degree
- Bachelor's Degree
- Master's Degree
- Doctoral Degree
- First-Professional Degree (i.e., Law Degree, Medical Degree, etc.)

What was your major field of study?

What is your current job title?

Question Block 1

In response to the loss of state appropriation revenue experienced at your institution from 2008 to 2009, please evaluate the financial management strategies and tactics below and indicate if the tactic was implemented and to what degree of fiscal impact the tactic had for your institution.

	Not Implemented	Implemented, with Negative Fiscal Impact	Implemented, with No Fiscal Impact	Implemented, with Low Fiscal Impact	Implemented, with Moderate Fiscal Impact	Implemented, with High Fiscal Impact
Increase the number of adjunct faculty	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Increase student/faculty ratio	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Increase enrollments in selected programs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reduce number of faculty	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Initiate a hiring freeze	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reduce funding and staffing for library services and student services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Eliminate programs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Increase incidental fees						

(non-academic related: i.e. parking fees)	<input type="radio"/>					
Increase use of restricted funds	<input type="radio"/>					

Question Block 2

In response to the loss of state appropriation revenue experienced at your institution from 2008 to 2009, please evaluate the financial management strategies and tactics below and indicate if the tactic was implemented and to what degree of fiscal impact the tactic had for your institution.

	Not Implemented	Implemented, with Negative Fiscal Impact	Implemented, with No Fiscal Impact	Implemented, with Low Fiscal Impact	Implemented, with Moderate Fiscal Impact	Implemented, with High Fiscal Impact
Reduced faculty/staff through nonreplacement	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Increase fund-raising and development efforts	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Collapse course sections into fewer, larger sections	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reduce financial commitment to athletic activities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mandate faculty/staff furloughs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Re-engineer work tasks	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Increase reliance on technology in teaching and learning	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reduce permanent staff positions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Increase institutional enrollment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Question Block 3

In response to the loss of state appropriation revenue experienced at your institution from 2008 to 2009, please evaluate the financial management strategies and tactics below and indicate if the tactic was implemented and to what degree of fiscal impact the tactic had for your institution.

	Not Implemented	Implemented, with Negative Fiscal Impact	Implemented, with No Fiscal Impact	Implemented, with Low Fiscal Impact	Implemented, with Moderate Fiscal Impact	Implemented, with High Fiscal Impact
Reduce funding available for professional development and travel	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Utilize new funding sources or revenue streams	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Implement TQM	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Reduce number of administrative positions	<input type="radio"/>					
Eliminate courses	<input type="radio"/>					
Increase student tuition and fees (academic related fees)	<input type="radio"/>					
Defer equipment purchases	<input type="radio"/>					
Utilize short-term borrowing	<input type="radio"/>					
Reduce number or amount of scholarships	<input type="radio"/>					

Question Block 4

In response to the loss of state appropriation revenue experienced at your institution from 2008 to 2009, please evaluate the financial management strategies and tactics below and indicate if the tactic was implemented and to what degree of fiscal impact the tactic had for your institution.

	Not Implemented	Implemented, with Negative Fiscal Impact	Implemented, with No Fiscal Impact	Implemented, with Low Fiscal Impact	Implemented, with Moderate Fiscal Impact	Implemented, with High Fiscal Impact
Implement or enhance an early or phased retirement program	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reduce or restrict operating funds	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Increase enrollment in specific areas (out-of-state students, online students, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Initiate targeted cuts	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provide program delivery primarily based on cost	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Differential tuition for expensive programs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Utilize long-term borrowing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Institute growth by substitution rather than addition	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Apply break-even analysis to programs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Question Block 5

In response to the loss of state appropriation revenue experienced at your institution from 2008 to 2009, please evaluate the financial management strategies and tactics below and indicate if the tactic was implemented and to what degree of fiscal impact the tactic had for your institution.

Not	Implemented, with Negative	Implemented, with No	Implemented, with Low	Implemented, with Moderate	Implemented, with High
-----	----------------------------	----------------------	-----------------------	----------------------------	------------------------

| | Implemented | Fiscal Impact |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Request that donors allow restricted gifts to be used for other purposes | <input type="radio"/> |
| Limit institutional enrollment | <input type="radio"/> |
| Use long-range strategic planning for management and budgeting | <input type="radio"/> |
| Utilize federal stimulus funds (in FY09, not FY10 or FY11) | <input type="radio"/> |
| Reduce and/or modify the scope of activities of the institution | <input type="radio"/> |
| Faculty/staff salary freeze | <input type="radio"/> |
| Allocate funds primarily based on program needs | <input type="radio"/> |
| Outsource operations and services previously provided internally | <input type="radio"/> |
| Initiate across-the-board cuts | <input type="radio"/> |

Question Block 6

In response to the loss of state appropriation revenue experienced at your institution from 2008 to 2009, please evaluate the financial management strategies and tactics below and indicate if the tactic was implemented and to what degree of fiscal impact the tactic had for your institution.

	Not Implemented	Implemented, with Negative Fiscal Impact	Implemented, with No Fiscal Impact	Implemented, with Low Fiscal Impact	Implemented, with Moderate Fiscal Impact	Implemented, with High Fiscal Impact
Defer maintenance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Invest in energy savings and efficiency measures	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Emphasize teamwork across departments to accomplish institutional objectives	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reduce funding for student life activities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lay-off personnel	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Question Block 7

To what degree did the combination of financial management financial strategies and tactics implemented fulfill the desired level of fiscal stability for your institution?

Not at all satisfied Slightly satisfied Moderately satisfied Very satisfied Completely satisfied



Question Block 8

Please rank the following statements in terms of overall importance to the reason for the selection and implementation of financial management response to eroding state appropriations by DRAGGING and DROPPING the items into the box:

Items	Rank the overall reasons for tactic implementation:
Perceived level of highest fiscal impact	
Implemented tactics according to the institutional strategic plan	
Avoidance of perceived negative political impact	
Implemented as needed to maintain fiscal stability, no overarching approach	
Perceived to be least intrusive for campus constituents	

Question Block 9

To what degree did the following influence the knowing and understanding of the selection of financial management strategies and tactics?

	Not at all influential	Slightly influential	Moderately influential	Very influential	Extremely influential
Your own formal education	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Recommendations and information from NACUBO or other professional trade group	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Recommendations and discussions from professional colleagues at other institutions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Recommendations and discussions with colleagues at my institution	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Information from conferences attended	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
What other institutions were implementing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Own personal experiences and decision making	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Block 12

Appendix H

Item Number	Item	Loading	Factor	Communalities Extraction
4.10	Lay-off personnel	0.710	1	0.740
4.7	Reduce number of administrative positions	0.574	1	0.370
4.6	Reduce permanent staff positions	0.547	1	0.383
2.4	Defer equipment purchases	0.535	1	0.419
4.2	Reduce number of faculty	0.472	1	0.258
1.1	Increase student/faculty ratio	0.470	1	0.363
1.6	Eliminate courses	0.469	1	0.377
2.10	Reduce funding for student life activities	0.467	1	0.451
1.4	Collapse course sections into fewer, larger sections	0.461	1	0.327
5.3	Increase fund-raising and development efforts	0.460	1	0.245
2.3	Reduce funding available for professional development and travel	0.453	1	0.311
3.7	Reduce and/or modify the scope of activities of the institution	0.445	1	0.245
3.8	Outsource operations and services previously provided internally	0.433	1	0.340
5.4	Utilize new funding sources or revenue streams	0.428	1	0.221
2.1	Reduce funding and staffing for library services and student services	0.418	1	0.353
1.3	Eliminate programs	0.412	1	0.241
3.10	Emphasize teamwork across departments to accomplish objectives	0.384	1	0.159
5.2	Increase use of restricted funds	0.380	1	0.273
2.5	Reduce or restrict operating funds	0.379	1	0.245
2.9	Defer maintenance	0.345	1	0.318
3.3	Implement TQM	0.301	1	0.118
2.2	Reduce financial commitment to athletic activities	0.285	1	0.189
3.6	Use long-range strategic planning for management and budgeting	0.262	1	0.215
3.2	Increase reliance on technology in teaching and learning	0.248	1	0.189
2.7	Allocate funds primarily based on program needs	0.229	1	0.142
2.6	Initiate targeted cuts	0.210	1	0.106
5.10	Utilize federal stimulus funds (in FY09, not FY10 or FY11)	0.199	1	0.127
1.5	Increase institutional enrollment	0.658	2	0.464
1.2	Increase enrollments in selected programs	0.604	2	0.551
1.8	Increase enrollment in specific areas (out of state students, online students, etc.)	0.442	2	0.262
1.10	Limit institutional enrollment	-0.438	2	0.259
4.4	Reduced faculty/staff through nonreplacement	-0.320	2	0.297
3.5	apply break-even analysis to programs	0.314	2	0.226
2.8	Initiate across-the-board cuts	-0.299	2	0.170
1.9	Provide program delivery primarily based on cost	0.275	2	0.204
3.4	Institute growth by substitution rather than addition	0.195	2	0.098
1.7	Reduce number or amount of scholarships	0.394	3	0.325
3.1	Re-engineer work-tasks	-0.392	3	0.353
4.3	Initiate a hiring freeze	0.344	3	0.325
3.9	Invest in energy savings and efficiency measures	-0.298	3	0.160
4.5	Mandate faculty/staff furloughs	0.447	4	0.486
4.1	Increase the number of adjunct faculty	-0.339	4	0.294
5.9	Request that donors allow restricted gifts to be used for other purposes	-0.338	4	0.222
5.8	Utilize long-term borrowing	0.310	4	0.203
5.5	Increase student tuition and fees (academic related fees)	0.277	4	0.133
5.7	Differential tuition for expensive programs	0.277	4	0.148
4.8	Implement of enhance an early or phased retirement program	0.412	5	0.325
5.1	Increase incidental fees (non-academic related: i.e. parking fees)	-0.341	5	0.287
4.9	Faculty/staff salary freeze	0.289	5	0.141
5.6	Utilize short-term borrowing	-0.271	5	0.155

Extraction Method: Maximum Likelihood

Rotation Method: Varimax with Kaiser Normalization