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Higher Education Vulnerability:
An Assessment Model
Daniel A. Finseth

A dissertation submitted to the Graduate School of
JAMES MADISON UNIVERSITY

In
Partial Fulfillment of the Requirements
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Abstract

In the face of declining enrollments and increasing accountability and expectations, private colleges and universities will be facing greater internal and external pressures to deliver higher quality education at a lower cost. In this environment, multiple stakeholders are focused on institutional sustainability. To address these concerns, it is important to understand whether there are leading indicators that may aid in the anticipation of institutional decline. While there is a body of work addressing institutional metrics that serve as predictors of higher education financial viability, there has been little emphasis on complex organizational dynamics. This integrated mixed methods study employed grounded theory to explore how higher education experts understand organizational vulnerability. To gain insight and develop theory, interviews were conducted with institutional leadership, policy makers, and other experts in the field of higher education. This allowed for development of a model which improves understanding of the complex factors that signal institutional decline. Concurrent with the qualitative study, a financial analysis indicator was evaluated to provide an assessment of institutional vulnerability for private colleges and universities. The objective was to use the predictor to identify at-risk institutions. The qualitative and quantitative portions of the study were combined using an iterative, equivalently driven, bidirectional process to address whether the vulnerability theory developed in the study could be used to explain the dynamics of the institutions with an at-risk predictor score. Implications and application of the research for private college and university stakeholders are discussed.

Chapter 1

Introduction, Purpose, and Significance

Since 2016 there has been a notable increase in the number of private nonprofit four-year colleges and universities closing each year (Kelchen, 2020). Between December of 2018 and February of 2019, Green Mountain College, Newbury College, and Mount Ida College, all New England Colleges, announced their impending closure. With Hampshire College in Amherst, MA, and Southern Vermont College showing signs of deep trouble, there is growing concern regarding the viability of many private nonprofit colleges. The closure rate for small private nonprofit colleges, which was five in 2015, is expected to grow to 15 or more per year in the early 2020s (Busta, 2018). Christensen and Horn (2018) provide an even more dire prediction of the future, estimating that as many as 50% of colleges and universities will close or go bankrupt by the end of the 2020s (Camera, 2019).

The long-term view does not look brighter, as a decrease in birth rates following the 2008 financial crisis will result in smaller college enrollments beginning in 2025 (Grawe, 2019). This shift in enrollment will have geographic variations, with the Mountain and West-South-Central regions experiencing enrollment growth. The Midwest and Northeast regions will see decreases in enrollment as large as 15%. Closures will continue and indicate a growing crisis in higher education (Camera, 2019). Although the steep enrollment declines are not projected until 2025, private colleges have already been experiencing decreases in enrollment (Kelderman, 2019).

Declining enrollment is not the only element having a negative impact on the performance of private colleges and universities. From the perspective of Christensen

and Horn (2018), the crisis in higher education stems from an outdated business model. Tuition discounting is viewed as especially problematic, with an average rate of 49.9% for the 2017-18 academic year (Christensen & Horn, 2018). If students are paying approximately half of the amount charged, that puts a squeeze on revenue. This narrowing of revenue is coupled with cost increases in an industry challenged to control costs due to economies of scale (Christensen & Horn, 2018; Harris, 2013; Kamenetz, 2013; Selingo, 2013; Townsley, 2014).

It was anticipated that the difficulties posed by the coronavirus would add to the problems being experienced by these institutions, especially those dependent on tuition for their survival (Jaschik, 2020; Kelderman, 2020a; Kelderman, 2020b; Seltzer, 2020). Fitch Ratings (2020) projected enrollment declines of as much as 20% for the 2020 academic year as a result of the coronavirus. The negative enrollment impact was greatest for private colleges, which are more tuition dependent (Fitch Ratings, 2020). The coronavirus impact was especially acute for colleges and universities that enroll international students, as travel restrictions eliminated that source of often full tuition paying students (Fitch Ratings, 2020; Moody's, 2020). For the 2020 / 2021 academic year, international student enrollment declined 16%, with a 43% decline in new international students and 40,000 students deferring enrollment (Anderson, 2020). The decreases in revenue had a dramatic impact on operations, as demonstrated by the University of Akron laying off 23% of its faculty as a cost-cutting measure in response to the coronavirus (McLean, 2021).

To assist with the revenue decreases, the CARES Act provided \$14 billion in funding for higher education (DeVos, 2020). There was, however, wide disparity in the

distribution of that funding (Murakami, 2020). The majority of the CARES Act was tied to enrollment, with a second-round distribution of remaining funds. Institutions with enrollments in the hundreds or less found that they received thousands of dollars per student. Institutions with more students received far less per student. In addition, the distribution of a portion of the grants from the CARES Act required a competitive grant process (Murakami, 2020). The completion and evaluation of the grants led to delays in the distribution of the funds.

The students served by the small private nonprofit colleges and universities are often underserved populations or in underserved markets, making the survival of those institutions important. Many of the colleges and universities that will suffer financially will be small and rural (Townsley, 2014). According to Myers (2018), people in rural areas have fallen further behind in income, net worth, and health since the Great Recession of 2008. At the same time, these rural areas are more likely to be educational deserts, with limited access to higher education (Hillman & Weichman, 2016; Myers, 2018). When 40 percent of first-time, full-time freshman attend colleges and universities within 60 miles of home, the loss of rural institutions is troubling (Myers, 2018). Price (2021) has suggested that HBCUs are especially vulnerable to financial challenges, particularly in the coronavirus era (Schlemmer, 2021). The closure of St. Paul's College in Virginia is one example of the loss of a small HBCU in recent years (Hawkins, 2013; Price, 2021). The HBCUs offer their alums valuable networking that enables career success and social mobility that may not be available in other colleges and universities (Price, 2021). Knowledge gained from this study may not be able to save these institutions, but it may help trustees, senior administration, and state departments of

higher education become more proactive in their management of institutions. Such proactive management may be the difference between success and failure.

When failures occur and colleges close, it is often sudden and leaves key constituents, including students, in a very difficult position. When Green Mountain College closed in Vermont, there was a six-month lead time and plans in place for transferring students (Paterson, 2019). When Newbury College, a small private college in Massachusetts, closed in 2019, students were notified one semester in advance (Busta, 2018). At St. Paul's College, a small private HBCU in Virginia, the Chair of the Board of Trustees notified the regional accreditor only one month in advance of closure (Hawkins, 2013). In October of 2019, students and faculty at Cincinnati Christian University learned that the institution would be closing at the end of fall semester, giving students mere weeks to transfer to other colleges and faculty and staff little time to find other jobs (Kelderman & Bauman, 2019).

It appears that governing agencies are often just as surprised as students when closures are announced. Massachusetts seems to be unique in their proactive approach to addressing institutional risk and failure. In response to the failure of Mount Ida College, Dr. Carlos Santiago, the Commissioner of Higher Education, developed a plan intended to avoid surprises in the future (Camera, 2019). The efforts in Massachusetts were characterized as representing a shift from monitoring the impact of market forces on higher education as an industry to playing an active role in mitigating risk for the participants in the market (Camera, 2019). To protect the interests of stakeholders it becomes imperative that governing agencies understand the risk of institutional sustainability as far in advance as possible.

Along with governing agencies, understanding vulnerability also allows key institutional leadership an opportunity to mitigate the risks as far in advance as possible. Hendrickson, Lane, Harris, and Dorman (2013) identify maintaining financial solvency as a key responsibility of the board of trustees. Hendrickson et al also discuss the role of the president, which includes an understanding of the organization's internal and external operating environment. The president is also responsible for ensuring that there is a competent cabinet in place, which would include a Chief Financial Officer and others who have the capacity to evaluate and respond to institutional trends. Based on his survey of more than 1,000 colleges and universities, Dickeson (2010) found that the president played a significant role in establishing institutional direction. This was due to the president's responsibility for planning, the president's oversight of the chief planning officers, and the role that the president plays in shaping and driving planning efforts. The ability to receive, understand, analyze, and respond to timely and accurate information is critical for the execution of institutional leadership's duties.

Despite the challenges facing private nonprofit four-year colleges and universities in the coming years, and the need to have a clear understanding of the risks relating to sustainability, there does not seem to be agreement on the critical indicators of institutional success or failure. This study is focused on the identification of vulnerable private nonprofit four-year colleges and universities. There have been several significant studies demonstrating the value of financial analysis as a predictor of organizational success or failure in the for-profit sector (Altman, 1968; Beaver, 1966, Taffler, 1982; Ohlson, 1980). Researchers in the nonprofit sector developed similar financial analysis, much of which was tied to the earlier work in the for-profit realm (Greenlee & Trussel,

2000; Keating, Fischer, Gordon, & Greenlee, 2005; Prentice, 2016; Trussel, 2002; Trussel & Greenlee, 2004; Tuckman & Chang, 1991). An additional body of work exists addressing financial analysis in higher education (Chabotar, 1989; Massy, 2016; Tahey, Salluzzo, Prager, Mezzina, & Cowen, 2010; Townsley, 2014; Zemsky, Shaman, & Baldrige, 2020). Despite the available financial analysis models, there is very little agreement regarding a best approach to assessing institutional risk in higher education. Even within the existing models, there is limited evidence they provide an ability to predict institutional success or failure. A lack of institutional failures relative to the number of existing colleges and universities makes statistical testing difficult (Zemsky, Shaman, & Baldrige, 2020).

While the gaps in the quantitative approach are significant, there is another component of organizational vulnerability that has largely been ignored, which is organizational dynamics. With few exceptions, the emphasis of existing models is on a quantitative approach to analyzing institutions. In their analysis of nonprofits, Trussel and Greenlee (2004) draw attention to the potential impact of nonfinancial information, including organizational leadership. Although enrollment and finances may play a significant role, colleges and universities are complex organizations, so it seems possible that internal environmental factors beyond finances and enrollment may influence success or failure. Townsley (2014) addresses the concept of *salient relationships* as having an impact on the financial well-being of a college or university. The analytics developed by Tahey, Salluzzo, Prager, Mezzina, and Cowen (2010) are substantial and detailed, yet they provide the caveat that one must consider factors such as leadership and vision while assessing the organization. The criteria used by credit rating agencies such

as Fitch Ratings (2018), Moody's Investor Service (2011), or S&P Global Ratings (2016) include aspects of organizational performance that cannot easily be measured. While reference is frequently made to factors outside of the more easily measured financial and activity items, there is limited research that explicitly addresses what these factors may be or how they may influence organizational vulnerability in higher education.

Research Questions and Approach

This study proposes improving the understanding of private college vulnerability by addressing three research questions. The first research question is whether a predictive organizational risk score can be developed for private nonprofit colleges. The quantitative portion of the study was conducted concurrent with the qualitative portion and addressed the development of a predictive organizational risk score. This risk score was primarily based on the Tuckman and Chang (2001) factors and Trussel and Greenlee (2000) *Z-score* for nonprofits. The existing work in the for-profit and nonprofit sectors indicates that lead times for valid identification of vulnerability and failure tend to be approximately two-years (Altman, 1968; Beaver, 1966; Chang & Tuckman, 2001; Ohlson, 1980). Predictive ability diminishes significantly beyond two years. The study used data obtained from the Integrated Post-Secondary Education Data System (IPEDS).

The second question is how do leaders in nonprofit higher education understand organizational vulnerability? Specifically, what are the factors that experts consider to be important indicators of organizational vulnerability? Finally, can the way in which nonprofit private college leaders understand organizational vulnerability be used to evaluate the organizational, leadership, or other related dynamics of the organizations

with a predictive score indicating risk? An integrated mixed methods design is used to address the research questions posed in this study.

The qualitative portion of the study used grounded theory to develop an understanding of the factors influencing institutional vulnerability and failure. A grounded theory approach is often useful when the existing theories are unable to explain a set of circumstances (Lye, Perera, & Rahman, 2018). Grounded theory is also useful when identifying knowledge gaps or the subject under study has been largely ignored in the literature (Goulding, 2002; Lye, Perera, & Rahman, 2018). This is an inductive approach and lends itself to comprehending complex phenomena (Locke, 2001; Lye, Perera, & Rahman, 2018). This is a methodological approach based largely on the work of Strauss and Corbin (1990) along with Charmaz (2000). Grounded theory is usually associated with qualitative research in the social sciences, but there is a deep body of work utilizing this research method within accounting and finance (Greenhalgh, 2000; Gurd, 2008; O'Reilly, Paper, & Marx, 2012; Prentice, 2015). As Locke (2001) argues, organizational dynamics are ultimately about people, and grounded theory was the best way to understand the complexities inherently at play within colleges and universities. Inductive grounded theory discovery studies are uniquely situated to provide findings of importance in a field (Ferreira & Merchant, 1992).

An ex-ante literature review was conducted to develop topics for interviews and secondary source review. Interviews were conducted with key experts in private nonprofit four-year colleges and universities. The interviews included a college trustee, a college president, a college CFO, senior members of state commissions of higher education, regional accreditors, external auditors, commercial bankers, and industry

experts. After analysis, coding, and review, an interpretation of the data was developed. An ex-post literature review was conducted to develop a theory of the factors driving organizational success and failure. The emergent theory may be used to guide public policy and institutional oversight.

The qualitative portion of the study is intended to develop a better understanding of the factors that leaders and experts view as important to understanding organizational vulnerability for private nonprofit colleges. The quantitative portion of the study provides a means to distinguish between not-at-risk and at-risk institutions. As those two portions of the study converge, the final research question is addressed: Does theory developed from the qualitative study help explain organizations identified as at risk? With that knowledge, key stakeholders, including trustees, senior leadership, and policymakers, may be better positioned to proactively address institutional risk.

Definitions and Explanation of Concepts

There are several accounting, finance, and higher education concepts that require explanation for this study. A foundation for analysis of any organization, no matter the form or industry, is liquidity. The most basic definition of liquidity is cash or current assets that can readily be converted to cash (Weiner, 2009). Current assets that can readily be converted to cash include marketable securities, accounts receivable, and inventory. In some definitions, the emphasis is placed on the ability of an organization to pay for its current liabilities (Wild, 2021). Tahey, Salluzzo, Prager, Mezzina, and Cowen (2010) recognize the complexities and nuances of liquidity when they note that it can have different meaning for different people, depending on their position and perspective. Expectations regarding market conditions may influence the valuation of current assets

such as marketable securities. If there is a recession, those securities may have to be sold at a loss. That perception is also influenced by the time-frame being used. If it is a one-month time horizon, events are more certain than a one-year time horizon (Tahey et al, 2010). For purposes of this study, liquidity will refer to cash and liquid current assets at their reported value as of the financial statement date.

The concept of leverage and related leverage ratios are more germane to the for-profit world. However, because leverage appears in the development of the literature, the definition will include both leverage and debt. Leverage refers to the extent to which a firm uses borrowed funds to expand earnings capacity (Weiner, 2009). Extensive use of debt to finance operations may create problems. An organization must pay both interest on debt and the debt itself (Weiner, 2010; Wild, 2021). In the nonprofit higher education field, the discussion focuses more specifically on debt, which is generally bonds and notes payable (Tahey, Salluzzo, Prager, Mezzina, and Cowen, 2010). Tahey et al note that modern higher education has developed a variety of funding mechanisms, including the use of subsidiaries and foundations. Debt will refer to the stated value of the obligations listed as liabilities as of the financial statement date.

Wild (2021) describes solvency as the ability to cover long-term obligations while also being able to generate future revenues. The ability to pay obligations over the long-term is a critical component of solvency in the eyes of Wallace, Nelson, Christensen, and Ferris (2017). The ability to pay those obligations over the long-term is a function of the level of total available assets relative to total liabilities. Much of the ability to pay obligations is linked to revenue, which Tuckman and Chang (1991) argue must come from a diversity of sources. In higher education, especially at small, private nonprofit

institutions, a large share of the revenue comes from tuition. Tuckman and Chang (1991) emphasize the importance of revenues exceeding expenses, which they refer to as the surplus margin.

Ratios are a common tool for financial analysis. A financial ratio is one number divided by another where a meaningful relationship exists (Weiner, 2009). The ratio explains a relationship between two numbers drawn from the organization's balance sheet, operating statement, and related records (Beaver, 1966; Chabotar, 1989). The comparison of a financial statement item or ratio with the same item or ratio from a prior period helps the analyst identify trends in an organization's economic performance, financial condition, liquidity, solvency, and profitability (Warren, Reeve, & Duchac, 2018). Ratios are generally classified within the categories of liquidity, leverage, profitability, solvency, and activity (Altman, 1968). Ratios offer the advantage of controlling for organizational size differences (Altman, 1968; Chabotar, 1989). Financial ratio analysis has been found to be especially useful in the detection of operational and financial difficulties (Altman, 1968). Chabotar warns, however, that the user of ratios must be aware that it is not always possible to judge whether the value observed from a particular ratio is good or bad. There is a lack of standards and those that exist may not be relevant in all situations. The most useful type of ratio analysis evaluates the ratios over a period of time, usually three to five years, in order to reduce the effect of exceptional events and to identify trends (Chabotar, 1989). Instead of profit, there are a range of financial management objectives that are often peculiar to nonprofit colleges and universities (Chabotar, 1989). For example, ratio analysis has to accommodate how nonprofit colleges categorize their financial resources in order to meet their legal

obligations. They also must be able to identify those resources by particular fund and segregate them between restricted and unrestricted resources. Any ratio that measures the institution's cash position must account for restricted versus unrestricted resources (Chabotar, 1989).

Beaver (1966) focused on a definition of failure in the for-profit world as a firm being unable to meet its financial obligations. That failure was further explained as an organization declaring bankruptcy, defaulting on a bond issue, or overdrawing funds from a bank. Subsequent seminal work in the field by Altman (1968) and Ohlson (1980) used a dichotomous bankruptcy versus no bankruptcy parameter to define failure. Taffler (1982) recognized that rather than a bright line separating success and failure, the distinction was much more nuanced. Continuing organizations were not necessarily financially health, and some firms that remained more closely resembled those companies that had failed in the past. For nonprofits, Trussel (2002) suggested a two-tiered approach of severely at risk and vulnerable. An organization that is severely at risk is one that is in the bottom quintile for all four of the key financial ratios used by Tuckman and Chang (1991). Vulnerability was said to exist if an organization was in the bottom quintile for any one of the four ratios. Trussel and Greenlee (2004) focused on nonprofit organization vulnerability, and adopted a definition of distress based on a significant reduction in net assets over a period of time. Shifting the view to the nonprofit higher education sector, Zemsky, Shaman, and Baldrige (2020) adopt a framework that includes gradients of risk akin to storm warnings. Their categorizations include *alerts* for moderate levels of risk and *warnings* for higher levels of risk. For purposes of this study, a broader definition of failure has been adopted, which includes institutions forming

strategic partnerships or merging with other institutions by necessity or those that have closed. Vulnerable and vulnerability will be used to describe institutions at risk of failure within three years.

Chapter 2

Literature Review and Theory

In this section the key areas of literature and theory informing the research are explored. The first portion of the literature review will focus on financial analysis, progressing from descriptive work in the for-profit world to predictive efforts in the nonprofit and higher education fields. While the objective of the study is to build theory, there is an inherent assumption that leaders and leadership will shape institutional outcomes. For that reason, the second section of the literature review offers a brief summary of existing leadership work, including work in higher education. The final section of the literature review moves to a broader perspective and will review existing work in higher education organizational dynamics and how organizational theory, and organizational institutionalism in particular, may influence the operations of colleges and universities. This section concludes by indicating where gaps exist in the current literature and how this study advances the field.

Financial Analysis

Financial analytics are categorized using four types: descriptive, diagnostic, predictive, and prescriptive (Easton, McAnally, & Sommers, 2021). Descriptive analytics provide a summarization of data and any associated observable patterns. The objective is to develop a comprehension of economic activity over the reporting period. As an organization works to develop a deeper understanding of what happened and why, they will apply diagnostic analytics. Rather than just reporting the numbers, diagnostic analytics may apply more advanced techniques to identify factors that impact the observed results. Predictive analytics take it one step further, using the existing data to

make an assessment regarding the likelihood of future events. The last type of analytics, prescriptive, addresses what should be done with the knowledge gained from the data (Easton, McAnally, & Sommers, 2021).

Efforts to use financial ratios to predict firms at risk for failure began to appear in the literature in the 1960s. Beaver (1966) analyzed manufacturing companies to determine whether financial ratios could be used to predict firm failure. He also characterized the study as an effort to verify the usefulness of accounting information. For that study, failure was defined as the lack of ability to cover financial obligations. Beaver's view of the firm was focused on liquid-asset-flow, conceptualizing the organization as a reservoir of funds that provide cushion. This cushion is augmented by the inflow of funds in the form of revenue sources and depleted by the outflow of funds. Key ratios analyze the size of the reservoir and the rate of funds flowing in and out of the firm. His work suggested that there was predictive value as many as five years in advance of failure.

Altman (1968) built on the predictive analytic literature by identifying specific ratios that might be useful in predicting bankruptcy. As with Beaver (1966), this was a dichotomous conceptualization of organizational success or failure within the model. A key contribution of Altman's work was the use of multiple discriminant analysis to develop a more parsimonious model, identifying those ratios that were most meaningful in explaining firm failure while eliminating collinearity. Altman also found that the predictive value is largely limited to an approximately two-year window prior to firm failure. The predictive ability diminished greatly for timeframes greater than two years prior to failure. Altman developed a discriminant function composed of five ratios: (a)

working capital divided by total assets; (b) retained earnings divided by total assets; (c) earnings before interest and taxes divided by total assets; (d) market value of equity divided by book value of total debt, and; (e) sales divided by total assets. A close look at those ratios reveals that four of the five ratios share total assets as a denominator. This provides an empirical example of Beaver's (1966) conceptualization of the firm as a reservoir of funds.

Additional research refined the ratio analysis and prediction work, most notably the work of Ohlson (1980) and Taffler (1982). Ohlson introduces the idea that there may be a time lag between financial events occurring for firms and the associated information being available for analysis. If a model is to have value, the information it provides has to be both accurate and timely. A reporting lag negates the timely availability of information. Further complicating the issue, Ohlson found that the delay tended to be longer for firms in the year of bankruptcy. As the situation is worsening for a firm, the auditors and others tend to take longer in preparing the reports. After accounting for the reporting lag, Ohlson also found a similar lead time before failure as Altman (1968) of approximately two years. Taffler (1982) recognizes that the distinction between success and failure is not simple to distinguish. He noted that firms continuing in operation were not always financially healthy. Many of the surviving firms appeared to share similarities with bankrupt firms. This implies that the distinction between success and failure is not dichotomous. Taffler paints the picture of the struggling firm as a drink near a cliff; Bankruptcy is a wind gust that finally pushes them over the edge.

Nonprofit Analysis

Tuckman and Chang (1991) were among the first to develop a financial ratio analysis framework for nonprofit organizations. Given that bankruptcy may not be the defining moment of failure for nonprofits, they developed a working definition of vulnerability that focused on the cutting of program services in the face of financial shocks. Tuckman and Chang do not reference Beaver (1966), but their view of the organization is similar to Beaver's view of the firm as a reservoir of resources. Tuckman and Chang place an emphasis on access to liquid assets, a variety of revenue sources, high administrative costs, and high operating margins. Using the reservoir analogy, the liquid assets are the reservoir. The variety of revenue sources is several inflows filling the reservoir. If there are multiple inflows, and one gets stopped up, the reservoir will continue to fill. If there are high administrative costs, Tuckman and Chang argue that the outflow can be decreased more readily than if those expenses are low. This staunches the flow out of the reservoir and allows the levels of resources to stabilize or build. High operating margins mean that revenues exceed expenses, which is another way of saying that the resources are flowing in at a greater rate than they are flowing out, which should add to the reservoir.

Tuckman and Chang (1991) provide specific methods to measure the concepts of equity balances, revenue concentration, administrative costs, and operating margins. The assessment of equity is the ratio of equity to total revenue. The authors point out that a nonprofit organization facing financial difficulties may not necessarily be able to convert the assets to cash, but the existence of those assets may provide access to financial resources. For example, a bank may be more willing to loan funds to an organization

with real estate holdings. Revenue concentration is calculated with a formula similar to the Herfindahl-Hirschman Index used by economists to calculate industry concentration. The concentration is the sum of the squares of the percent of total contribution to revenue from each source. If there were two sources of revenue accounting for 60% and 40% of the total, the squares would be .36 and .16 and the sum would be .52. Low administrative costs are calculated by dividing administrative costs by total expenses. Low or negative operating margins are identified by subtracting expenditures from revenues and then dividing by revenues. All of the values computed above have limited meaning as discrete items. Tuckman and Chang (1991) suggested that nonprofits whose results fell in the lowest quintile in any of the four categories should be considered at risk.

Greenlee and Trussel (2000) used the conceptual framework of Tuckman and Chang (1991) to develop a model to predict which nonprofit organizations may be vulnerable to financial issues. Using the same construct to assess vulnerability, Greenlee and Trussel (2000) used data from approximately 6,800 nonprofit organizations between 1985 and 1995. They also defined vulnerability to mean a decrease in program expenditures over three consecutive years. Greenlee and Trussel were able to develop a regression model that included equity, revenue concentration, administrative expenses, and operating margin. Trussel (2002) modified this model to exclude administrative expenses and added a factor for the size of the organization. Size is identified as important due to the benefits gained from economy of scale (Trussel & Greenlee, 2004). Trussel (2002) also controlled for the nonprofit sector in the refined model. Although Trussel and Greenlee (2004) defined vulnerability as a decrease in program expenditures, their modeling emphasized significant decreases in equity balances to identify distressed

organizations. When significant reductions in net asset values is viewed as a 20% reduction in net assets over a three-year period, 11% of the nonprofits in the study would be defined as distressed. The authors assessed the same pool of nonprofit organizations with a more stringent 50% reduction in net over assets over a three-year period, which yielded 7% of nonprofits falling in the distressed category.

While previous analyses have focused on the organizational financial metrics, Keating, Fischer, Gordon, and Greenlee (2005) recognize that there is both systemic risk and firm-specific risk. Systemic risk relates to the broader environment in which an organization operates. This includes macroeconomic factors, demographics, or other similar factors that impact revenue or demand for services. The authors suggested that proxies could be created for systemic risk, including the inflation rate, gross domestic product, general levels of corporate earnings, or stock market returns. Firm-specific risk is tied to the accounting records and analysis of associated financial results. Keating et al also enhance their model by adding variables for reliance on commercial revenue and endowment sufficiency. Reliance on commercial revenue is derived from the sale of goods or by charging clients for program services. This provides a variety of revenue streams. Endowment sufficiency is the ratio of the investment portfolio to total assets. The addition of these two variables improved the explanatory power of the model beyond the standard variables previously used (Greenlee and Trussel, 2000; Trussell and Greenlee, 2004; Tuckman and Chang, 1991).

Higher Education Analysis

Several authors address financial analysis in higher education. Chabotar (1989) was among the first to apply the ratio analysis concepts to nonprofit colleges and

universities. He developed descriptive analytics addressing the areas of liquidity, debt, sources and uses of funds, and operating results. For higher education, liquidity is especially important given the seasonal fluctuations in tuition receipts (Chabotar, 1989). In this early work Chabotar (1989) articulated his vision of vulnerability by noting that users of financial data would be disturbed to find two consecutive years of operating losses, an operating loss greater than that experienced the prior year, a deficit in two or more of the last five years, or an operating deficit exceeding 10% of total revenue.

Townsley (2014) draws attention to the use of a composite financial index (CFI) as a diagnostic tool for both internal and external analysts. The CFI provided by Townsley is focused on the primary ratio, net income ratio, return on assets, and viability ratio. The primary ratio is expendable net assets divided by total operating expenses. This provides an indication of the adequacy of organizational assets to cover expenses. A ratio of 0.5 translates to 6 months of expenses being covered by expendable assets (12 months X .05). The net income ratio is operating surplus divided by operating income. If there is an operating loss, this value will be negative. Townsley suggest that this should fall in the 2% to 4% range. Return on net assets is the change in net assets divided by beginning net assets. This value is reviewed for the trend, with a continuous positive 4% or greater growth being ideal. Continuing decreases in net assets indicate difficulties. The viability ratio is total expendable net assets divided by total long-term debt. The viability ratio is a basic assessment of whether an organization can meet debt obligations. After calculation of each of the four values, the ratio is converted to a strength factor. Each factor is weighted and the weighted factors are summed to arrive at an overall CFI value. This is diagnostic in nature as it does not provide direction for improvement.

Tahey, Salluzzo, Prager, Mezzina, and Cowen (2010) present a CFI which uses very similar components to those seen in the work of Townsend (2014), which are primary ratio, net operating revenue ratio, return on net assets ratio, and viability ratio. These are also evaluated and weighted. Tahey et al provide a graphic representation of these values using a diamond chart, with the primary reserve ratio and the viability ratio being tied to liquidity and opposite of each other on the diamond. The return on net assets ratio and the net operating revenues ratio are connected through their relationship to operating results, and are shown opposite of each other on the diamond. Tahey et al represents a 30-year evolution of descriptive and diagnostic analytics from the perspective of finance and accounting consultants. As such, the work provides both a broader and deeper look at the factors that impact finances and financial risk in higher education.

Recognizing the potential for closure of colleges and universities in the near future, researchers have also been working to develop predictive analysis. Most notable among recent work in this area is Zemsky, Shaman, and Baldrige (2020). The model developed by Zemsky, Shaman, and Baldrige uses both financial data and enrollment data. The financial component for four-year private not-for-profit colleges and universities is more parsimonious than other published works, looking only at market price and the ratio of endowment to expenses. Market price is the actual tuition and fees received as a percentage of the stated price. This is a reflection of brand in an increasingly competitive market. An institution struggling to compete may need to offer steeper and steeper discounts to attract students. Unlike the approaches discussed previously, Zemsky, Shaman, and Baldrige look at an institution's trends relative to

peers. Downward trends are categorized as hitting alert or warning levels, similar to storm warnings issued by meteorologists.

The second financial measure used by Zemsky, Shaman, and Baldrige (2020) is the ratio of endowment to total expenses. As with market price, this is assessed as a trend relative to peer institutions. A downward trend may reflect three conditions. First, a college or university may be exhibiting an increase in total expenses, which would result in a downward trending value. A decrease in the value of the endowment, with the same level of expenses, will result in a downward trend. Finally, an increase in expenses coupled with a decrease in the endowment will result in a negative trend (Zemsky, Shaman, & Baldrige, 2020). During periods of positive investment returns or extraordinary contributions to the endowment, increases in expenses will show a positive trend. An institution is at risk for market volatility and decreases in the value of the endowment, making the expense levels much higher relative to the endowment (Massy, 2016).

Credit Rating and Regulatory Analysis

Credit rating agencies focus on predictive analytics and use a broader approach to understanding organizations (Fitch Ratings, 2018; Moody's Investor Service, 2011; S&P Global, 2016). While each rating agency has developed their own proprietary rating methodology, they do share common elements. All three of the rating agencies include admissions selectivity in their rating criteria. S&P Global evaluates postsecondary institutions along the two dimensions of enterprise profile and financial profile. Market position and demand, of which admissions selectivity, retention, and matriculation are major components, makes up 70% of the enterprise profile dimension. Moody's frames

their analysis as market reputation and brand identity, linking it to the ability to command revenue via student enrollment and tuition. If an institution is exhibiting growth, S&P Global will place that growth in the context of the quality of the students as indicated by selectivity trends and other information such as standardized test scores. While most of the other analytic approaches do not explicitly include qualitative factors, the rating agencies provide detailed explanations of their qualitative considerations and how it impacts the credit worthiness of an institution. For example, S&P Global evaluates management and governance, weighting that element 10% toward the enterprise profile dimension. An exact figure is difficult to determine, but approximately 35% of Moody's Rating Service and 50% of S&P Global are related to qualitative factors. Fitch Rating service is more quantitatively oriented.

There are current efforts at diagnostic and predictive analytics from regulators at both the federal and state levels. The federal government has developed a financial responsibility score (FRS) for colleges and universities. The Education Department requires demonstrated financial responsibility in order for postsecondary institutions to participate in federal student assistance (FSA) programs (United States Department of Education, 2016). The objective of the FRS is to ensure that an institution would be able to reimburse the government for any amounts disbursed. The FRS was based, in part, on the KPMG ratio analysis developed by Tahey, Salluzzo, Prager, Mezzina, & Cowen (2010). Using the primary reserve ratio, equity ratio, and net income ratio, a composite score is developed. The scores are subject to the maximum of 3 and a minimum of -1, which means an institution may have a composite score exceeding those values. An institution scoring 1.5 or above is considered to be "financially responsible without

further oversight.” A school with a score of 1.0 to 1.4 is still considered to be financially responsible but additionally supervision may be required. An institution falling below 1.0 is not considered financially responsible and must obtain a letter of credit (LOC) equal to at least 50% of its FSA funding. The score alone, however, is not sufficient for an institution to establish financial responsibility. A private nonprofit school must also have sufficient cash reserves to make any required FSA refunds, be current on all of its financial obligations, including FSA refunds, and be current in debt payments (United States Department of Education, 2016). The focus of the Education Department is clearly the ability to repay FSA funds and is purely quantitative in nature with no consideration of qualitative factors.

A few states have developed ratio analysis, but those efforts are primarily directed toward public institutions in efforts toward transparency and public reporting. While these efforts may not be directed toward private institutions, they provide insight into the metrics which some state agencies perceive as valuable. In Maine the financial analysis is largely based on the KPMG model of ratio analysis (Tahey, Salluzzo, Prager, Mezzina, & Cowen, 2010). The state reports the primary reserve ratio, net operating ratio, return on net assets, and viability ratio, as suggested by KPMG. The documentation does not include the qualitative analysis that KPMG suggests is necessary to contextualize the ratio analysis. The results indicate that the University of Maine system requires significant work, and the document does not detail what will be done. The Mississippi Institutions of Higher Learning references the KPMG ratio analysis, but uses 35 different ratios to evaluate their system (Mississippi Institutions of Higher Learning, 2018).

As with the University of Maine System, The Mississippi Institutions of Higher Learning provide the numeric values without context or qualitative analysis. The Ohio Department of Education simply provides ratios with no explanation of their development or context (Ohio Department of Higher Education, 2018). Overall, there seems to be a lack of state efforts at utilizing ratio analysis, and the efforts that have been made are only for public institutions with no qualitative evaluation added to the quantitative analysis. However, the State Higher Education Executive Officers Association (SHEEO) has suggested that state education departments begin preparing ratio analysis for postsecondary institutions so they can identify trends and be prepared to engage in early intervention in the case of institutional decline (State Higher Education Executive Officers Association, 2017). SHEEO recognizes that when colleges close the state often has to pick up the pieces, so early intervention is to their benefit.

Limitations of Analysis

It is important to note that some of the financial ratio studies address the risk of error. It is primarily the early studies on the for-profit realm that address the issue of errors. Beaver discusses the risk of error, noting that the greatest risk is misclassifying a failed firm rather than misclassifying a non-failed firm. Altman (1968) and Ohlson (1980) both address the risk of error, but do not argue which type of error presents the greatest risk. Lending money to or investing in a failing firm presents one type of risk, and it seems reasonable that work in the for-profit world emphasizes misclassifying a failed firm as the most significant risk. In the analysis of nonprofit firms, and higher education in particular, the risk of misclassifying a non-failed firm must be considered. What is the impact of reputational harm in terms of donors, applicants, and enrollment?

The use of financial ratios in analytics has inherent limitations. The primary concern is that the ratios are a reflection of the underlying accounting information, and there may be inconsistencies in that accounting information (Beaver, 1966; Chabotar, 1989). There is an underlying assumption that the accounting data has utility (Beaver, 1966). Beaver (1966) suggested that based on the evidence, firms may attempt to window dress in order to improve their financial ratios. Ohlson (1980) noted that there is often a time lag between the close of a fiscal period and the availability of financial reports to prepare analysis. His study noted that this lag was even longer for firms in the year of bankruptcy.

Two other significant issues emerge from an analysis of the existing literature relating to analysis of private nonprofit colleges and universities. First, there is a general lack of agreement regarding the most important factors to consider when evaluating the vulnerability of a college or university. This lack of clarity limits the value of predictive analytics for nonprofit colleges and universities. The second issue is that both the descriptive and predictive literature is focused almost exclusively on quantitative analysis, which misses the complete picture provided by the inclusion of qualitative factors. There is a recognition that nonfinancial factors such as organizational relationships (Townesley, 2014), resource allocation (Tahey, Salluzzo, Prager, Mezzina, & Cowen, 2010), productivity (Massy, 2016; Zemsky, Shaman, & Baldrige, 2020), strategic planning (Weary, 2009) and leadership (Townesley, 2009) may play a role in institutional success. Zemsky, Shaman, and Baldrige (2020) also draw attention to the distinction between financial risk and market risk. Analytics may be useful for an assessment of financial risk, but more complex issues are at play and impact market risk.

While these factors are recognized, little research has been done to identify what nonfinancial factors are important.

Leadership

Articles that focus on quantitative evaluation of vulnerability note that an analyst should consider nonquantitative factors, including organizational leadership (Dickeson, 1994, 2010; Massy, 2016; Tahey, Salluzzo, Prager, Mezzina, & Cowen, 2010; Townsley, 2014). While it is suggested that leadership needs to be contemplated, there are significant challenges in evaluating the leadership of a college. The first challenge is that despite a depth of literature, a clear definition of leader and leadership is elusive. Leadership can be conceptualized in a variety of ways. As Bess and Dee (2012b) point out, leadership may be an influence process, a process aimed toward attainment of organizational objectives, a process of fulfilling individual needs, the characteristics of a person, or an exchange process. In addition, leadership is a function of both the person and the environment (Bess & Dee, 2012b).

A second challenge for researchers is that leadership in higher education is unique due to the nature of the institutions (Birnbaum, Bensimon, & Neumann, 1989; Cohen & March, 1986; Padilla, 2005). Buller (2015) points out that higher education organizations are different than corporations, which leads to differences in leadership. Higher education has a distributed leadership system with decentralized decision making (Buller, 2015; Cohen & March, 1986; Eckel & Kezar, 2003; Manning, 2018). Significant leadership roles are assumed by the board of trustees (Dickeson, 2010; Weary, 2009), the president (Massy, 2016; Middleton, 2009; Townsley, 2014), and provost or chief academic officer (Dickeson, 2010; Cormier, 2009; Massy, 2016). In addition, faculty

may play a significant role in a shared governance model (Eckel & Kezar, 2016). The nature of leadership is further complicated by the myriad stakeholders, which include, among others, students, staff, and the local community (Eckel & Kezar, 2016).

In 2002, McDaniel, in conjunction with the American Council on Education, used an outcomes approach to better understand leadership in higher education. With a grounding in Conger and Benjamin (1999) as well as Vicere and Fulmer (1998), McDaniel (2002) wanted to understand how college presidents and other experts in the field understood leadership and what effective leaders did. This research developed a competence-based approach, with four critical competencies in the areas of context, content, process, and communication. The context competence suggests that leaders must understand the issues, principles, and participants that impact the institution. Content refers to a leader's ability to apply their comprehension of the issues facing the organization. Working toward the attainment of institutional values and priorities is reflected in process competencies. Communication competency is characterized as much by the approach as the content.

Smith and Wolverton (2010) conducted quantitative research in an effort to refine the higher education leadership competencies developed by McDaniel (2002). Their research included a survey of approximately 300 senior higher education administrators. Based on this, Smith and Wolverton (2010) proposed five higher education leadership competencies they labeled analytical, communication, student affairs, behavioral, and external relations. Smith and Wolverton (2010) drew attention to the fact that the majority of the characteristics they included within the analytic competency are not specific to higher education. Communication is very similar to the definition proposed

by McDaniel (2002). Student affairs as a competency was unique in the work of Smith and Wolverton (2010), but their research included a range of senior administrators beyond the president. A leader with a high level of competence in student affairs would be aware of and respond to the needs of their students. The behavioral competency tracked fairly closely to McDaniel's (2002) leadership process competency.

A basic understanding of leadership is necessary for situating this study. Several authors have suggested that leadership is important when analyzing an organization's financial health (Dickeson, 1994, 2010; Massy, 2016; Tahey, Salluzzo, Prager, Mezzina, & Cowen, 2010; Townsley, 2014). It is surprising, therefore, to find little literature specifically addressing the connection between leadership and organizational vulnerability in higher education. In the nonprofit sector York (2013) developed a Sustainability Formula that is composed entirely of qualitative components, including leadership (Brothers & Sherman, 2012). York (2013) conceives sustainability as a function of leadership plus adaptability plus program capacity. To enhance sustainability, leaders need to be able to create and share their vision of the future with the organization and key stakeholders. They must be able to maximize resources through effective and efficient use of those resources. The leader should provide a clear sense of direction to organization members. All of this must be done while staying true to the organizational mission.

The components of the qualitative portion of this study may provide some insight regarding the distributed nature of higher education leadership. As each facet is evaluated, it seems important to understand how organizational leadership may influence outcomes and organizational success or failure. An example is the emphasis that the

rating agencies place on brand and market position (Fitch Ratings, 2018; Moody's Investor Service, 2011; S&P Global, 2016). Provosts, deans, department chairs, and faculty themselves provide the leadership that shapes student-faculty engagement. Colleges with greater student-faculty engagement tend to have greater retention. CFOs provide fiscal oversight and expense control, which may influence the resources available for classroom experiences and retention (Lau, 2003). Cost controls may also impact the resources devoted to recruitment and campus upkeep, which drive applications and enrollment (McClure, 2020).

An understanding of leadership exists with a significant body of research. There have been efforts at application of leadership research to higher education. There are, however, some gaps within that existing body of research. Much of the existing work is quantitative in nature and is focused on specific characteristics or traits possessed by individuals. There is also a lack of focus on smaller, private, nonprofit institutions. Perhaps more importantly, there is a lack of exploration of the relationship between leadership and institutional vulnerability. There appears to be a significant opportunity to expand the literature and gain insight into the relationship between the leadership of private colleges and organizational vulnerability.

Organizational Dynamics and Theory

Specific elements of organizational dynamics may be important indicators of institutional vulnerability. While all organizations will not be exactly alike, the literature relating to resource dependence and institutionalism suggests that there may be significant similarities across institutions within an industry, in this case private colleges and universities. Scott, Ruef, Mendel, and Caronna (2000) define institutional logics as

the predominant belief systems and practices in an organizational field. Institutional logics are the basic organizing principles used in decision making within an organizational field (Friedland & Alford, 1991). As institutional logics become more widely adopted within a field, they gain legitimacy (Bastedo, 2009). If an institutional logic has gained wide-spread legitimacy with multiple participants in a field, it is convergent, which implies a dominant principle (Bastedo, 2009). Several papers have explored the development of institutional logics in-depth, including analyses of higher education publishing (Ocasio & Thornton, 1999), restructuring in higher education (Gumport, 2000), professionalization of university administration (Gornitzka & Larsen, 2004), the expansion of higher education in the twentieth century (Schofer & Meyer, 2005), and the growth in higher education administration (Baltaru & Soysal, 2017). An example of formation of institutional logics for private colleges and universities is via presidential participation in the American Association of Presidents of Independent Colleges and Universities or The President's Trust at the Association of American Colleges and Universities. Both of these organizations target private college presidents, with the intention of developing networks and sharing best practices. It is through networks and collaborations such as these that institutional logics are formed (Phillips, Lawrence, & Hardy, 2000; Reay & Hinings, 2009).

Private colleges and universities operate in an open system environment under conditions of uncertainty (Baltaru & Soysal, 2017). Gornitzka (1999) argues that colleges and universities actively work to manage their environment as they focus on stability and growth. Among social scientists there tends to be agreement that organizations do not operate as wholly independent and autonomous entities (Gornitzka,

1999; Pfeffer & Salancik, 1978). The environment exerts influence on organizations (DiMaggio & Powell, 1983; Meyer & Rowan, 1977). Organizations must interact with their environment in order to accomplish their goals and objectives (Hillman, Withers, & Collins, 2009; Pfeffer & Salancik, 1978). The actions taken by organizations are purposive choices made within the limits of organizational autonomy and available information (Meyer & Bromley, 2013). While operating in an open-system environment organizations will engage in strategies to mitigate uncertainty (Hillman, Withers, & Collins, 2009; Pfeffer & Salancik, 1978).

Resource dependency recognizes that organizations depend on limited critical resources which they seek to acquire from the environment in which they operate (Gornitzka, 1999; Pfeffer & Salancik, 1978; Pfeffer, 1982). Consistent with an open-systems approach, these organizations have the flexibility and the autonomy to operate in a manner that provides the best ability to acquire those resources (Gornitzka, 1999). Although this capacity for self-direction exists, there are social constraints creating stakeholder expectations of how a legitimate organization operates (Abreu, Demirel, Grinevich, & Karataş-Özkan, 2016; Gornitzka, 1999; Pfeffer & Salancik, 1978). In the pursuit of resources, organizations also conform to rules and regulations to establish legitimacy and receive support (Kondra & Hurst, 2009; Scott & Meyer, 1983). A resource dependence approach in higher education is complicated by the variety of parties having an interest in the outcomes, including students, parents, donors, employers, accreditors, and state and federal regulatory bodies (Gumport, 2000). This is further complicated by the variety of markets impacting the institution, including competing institutions, employment markets for both placing students and hiring staff and faculty,

tuition and grant funding, and financial markets supporting endowments (Gumport, 2000). In recent years colleges and universities have been under increasing pressure to account for the resources they are given, leading to greater formalization, more professionalism of staff and administration, and greater transparency (Gornitzka & Larsen, 2004; Ramirez & Christensen, 2013). The impact of resource dependency has resulted in isomorphic pressure across higher education (Teixeira, Rocha, Biscaia, & Cardoso, 2014; Tierney, 1998). Ramirez and Christensen (2013) note that when there is a diversity of resources within and between organizations, as exists in colleges and universities, there may be both isomorphism and loose coupling. The stated goals and policies may be similar, but the day-to-day practices within an institution may differ from the stated goals and policies.

Institutional theory also offers an explanation of similarity between organizations. As they operate organizations are influenced by the legal system, professionalism within job fields, and the actions of similar organizations (DiMaggio & Powell, 1983). The influences exert pressures which result in homogenization and affects operations, organizing, and evaluation within organizations (Hinings & Greenwood, 1988; Kondra & Hurst, 2009). These are described as coercive, normative, and mimetic isomorphic pressures (DiMaggio & Powell, 1983; Ramirez & Christensen, 2013). The objective for an organization is to be perceived as appropriate within the organizational field, thus achieving legitimacy (Gornitzka, 1999; March & Olsen, 1989). Conformity to the environment to achieve legitimacy, including rules and regulations, does not mean that an organization is efficient (DiMaggio & Powell, 1983; Kondra & Hurst, 2009). Additionally, conformity may represent a constraining force on an organization as it

responds to its environment (Hinings & Greenwood, 1988; Kondra & Hurst, 2009; Powell, 1991). As an example, a college may not be able to quickly add a masters program due to limitations placed by accreditors. Overall, these institutional forces have been cited as creating similarities across colleges and universities (Manning, 2018; Ramirez, 2006 & 2010; Ramirez & Christensen, 2013).

Coercive isomorphic forces arise from rules, regulations, and regulatory bodies that govern organizational activities (DiMaggio & Powell, 1983; Guler, 2007; Scott, 2001). Organizations ensure compliance with regulatory demands in the face of legal sanctions (Scott, 2001). For some organizations, coercion comes in the form of a threat of expulsion, sanctioning, or retaliation from a trade group for violation of industry practices (Kondra & Hurst, 2009). For private colleges and universities these pressures come from federal reporting requirements, state departments of higher education, regional accreditors, credit agencies, and external auditors, among others. Coercive forces are also tied to resource-dependency, as organizations modify their operations based on access to and expectations of resource providers (Pfeffer & Salancik, 1978; Dimaggio & Powell, 1983; Guler, 2007; Perrow, 1986).

Normative isomorphism is developed from standardized practices within a profession (DiMaggio & Powell, 1983; Guler, 2007; Meyer & Rowan, 1977; Scott, 2001). Standardized practices, which are often an effort to establish legitimacy, are achieved through formal education and professional networks (DiMaggio & Powell, 1983; Kondra & Hurst, 2009). Scott (2001) suggests that professional norms may be based on social contracts rather than formal contracts. Through networked exchanges with other organization, actors learn about best practices and accepted norms for a

position (Guler, 2007). This is illustrated by a shift to a more professionalized staff and administration in colleges and universities, which may in turn create normative isomorphism (Kruecken & Meier, 2006). Gornitzka and Larsen (2004) found that university administrators in Norway created both formal and informal networks, which created and diffused standard practices across campuses. There are a number of organizations that facilitate exchanges for private college and university administrators and staff, including the President's Trust at the Association of American Colleges and Universities, Council of Independent Colleges, National Association of College and University Business Officers, College and University Professional Association for Human Resources, and National Association for Presidential Assistants in Higher Education. Even the external environment exerts similar pressure from state to state as organizations such as the State Higher Education Executive Officers Organization and the Council for Higher Education Accreditation create normative isomorphic pressures in the external environment.

Under conditions of uncertainty organizations seek opportunities to create a sense of stability (DiMaggio & Powell, 1983; Kondra & Hurst, 2009). In doing so they often attempt to replicate the operating activities of organizations perceived as successful within their field (Manning, 2018). This is mimetic isomorphism. Existing studies support the idea that environmental uncertainty provides an impetus for organizations to seek new strategies from other organizations within their environment (Rabovsky & Rutherford, 2016; Sawyerr, McGee, & Peterson, 2003). It is also suggested that the desire to mimic other organizations is an effort to create organizational legitimacy (Baltaru & Soysal, 2017; DiMaggio & Powell, 1983; Guler, 2007). Ramirez and

Christensen (2013) suggest that mimetic pressures are highest when seeking legitimacy under conditions of uncertainty with diffuse rather than specific goals. Given the multiple constituencies with competing goals and a state of uncertainty, there may be mimetic pressure within higher education. Baltaru and Soysal (2017) found that there was mimetic isomorphism and diffusion of standardized administrative approaches within European higher education. Institutions were borrowing ideas from one another and beginning to appear quite similar in their administrative structures and practices.

Organizational Demise

In addition to understanding organizational dynamics, an understanding of organizational demise is also valuable in the analysis of private nonprofit college vulnerability. Within organizational theory there are a variety of ways to conceptualize organizational demise, but it has been argued that there is no single theory that comprehensive enough to explain why a given organization may have failed (Hager, 1999). Levine (1978) offered a typology to help frame organizational failure. This framework, shown in Figure 1, suggests that there are internal and external forces acting upon an organization. Further, there are both political and economic / technical factors that impact organizational performance. These can be conceptualized in a two-by-two matrix with political vulnerability, problem depletion, organizational atrophy, and environmental atrophy impacting an organization (Hager, 1999; Levine, 1978; Searing, 2020).

In Levine's (1978) typology, political vulnerability refers to organizations where vulnerability has made them susceptible to revenue shocks. A variety of factors may contribute to this state, including organizational conflict, leadership challenges, and

diseconomy of scale. Applied to the field of small private nonprofit colleges, political vulnerability may arise during a crisis of leadership at an institution. Political vulnerability could also be an issue for a college that is seeing declining enrollment resulting in reductions in the size of the student body and tuition revenue. As the organization contracts, the reduced size creates vulnerability.

Figure 1. Levine's Typology of Organizational Decline

	Internal	External
Political	Political Vulnerability	Problem Depletion
Economic & Technical	Organizational Atrophy	Environmental Atrophy

Figure 1. Levine's Typology of Organizational Decline categorizes forces exerting pressure as internal or external with political and economic and technical factors.

Problem depletion describes a situation where an external threat prevents an organization from meeting its core mission (Levine, 1978). The external threats may come in the form of changes in demographics or changes in the needs the organization is addressing. Higher education is and will continue to see significant changes in the competitive landscape (Grawe, 2018; Massey, 2016). While there will be students, the ways in which they wish to have their education delivered may change. As pressures increase to justify the costs of education relative to outcomes, the service that colleges deliver may need to change (Staton, 2013). For example, there may be a shift to certification programs (Blumenstyk, 2015).

Organizational atrophy is a decline in organizational performance from internal causes (Levine, 1978). This decline may be caused by a wide variety of organizational issues, including an unwillingness to change, resistance to technological advancement, unclear lines of authority, and poor oversight. Analysis of higher education and vulnerability will likely identify many of the factors noted by Levine. Numerous authors

have identified a propensity to resist change in higher education (Bess & Dee, 2012; Braskamp & Wergin, 1998; Tierney, 1992). The often-chaotic lines of authority and decision-making processes have also been addressed in the literature (Bess & Dee, 2012, Cohen & March, 1986; Manning, 2018). The decentralization and loose coupling within higher education also seem consistent with Levine's description of the components of organizational atrophy.

Environmental atrophy describes a situation where the external environment is unable to support the organization. This is primarily a macro-economic related issue affecting the availability of a resource or market. For higher education there are two examples that may be cited. First, the anticipated declines in enrollment beginning in 2025 are an example of a macro-economic issue that will impact colleges (Grawe, 2018). Technological shifts may also be included within environmental atrophy. For colleges, they may become challenged by shifts in technology and the ability to deliver education in new, innovative ways.

Applying Levine's (1978) typology to higher education appeared to match a number of the descriptions for vulnerable organizations. That is not to argue, however, that small private nonprofit colleges and universities are in trouble. Organizational demise is one way to frame the understanding of vulnerability and the factors that may explain why these institutions are at risk.

Fernandez (2008) expands upon Levine's (1978) typology, suggesting the factors driving organizational demise may be divided into additional categories within Levine's four factors. Fernandez retains Levine's distinction between internal and external factors. Based on his analysis of Spanish non-profit organizations, Fernandez expanded the

technical-economic dimension to technical and resource mobilization factors of organizational demise. In addition, the political dimension was expanded to reflect the dimensions of power relations and goal attainment.

Levine (1978) forms a good foundation, but there are other frames of reference for understanding organizational demise. One framework that is applicable to higher education is niche theory. Cyert (1978) argued that an organization had two options when it was placed in a vulnerable position. The first option for the organization is to scale back operations. Given the costs of fixed infrastructure and inability to divest that burden, scaling back may not be an option for a private college. The second choice is to find another ecological niche. This has been seen in the field, especially among small colleges, with the expansion of on-line programs, addition of masters programs, and the development of certificate programs as examples of new niches sought by these institutions.

Network theory also has applicability to the field of higher education organizational demise. The emphasis of network theory is on the exchange of services and knowledge between organizations (Hager, 1999). Through the connections between organizations, they are able to gain access to resources they may not have otherwise had (Osborn & Hagedoom, 1997). This may be of critical importance for the smaller private college that is located in a remote location. The ability to exchange information will also aid the management and development of colleges as they learn what others are doing to succeed (Hager, 1999).

Grounded Theory

To place this study in context, it is valuable to understand the theoretical foundations of grounded theory. The qualitative portion of the study used grounded theory to develop an understanding of the organizational factors influencing institutional vulnerability and failure. A grounded theory approach is often useful when the existing theories are unable to explain a set of circumstances (Lye, Perera, & Rahman, 2018). Grounded theory has been identified as an appropriate research approach when identifying knowledge gaps or when the subject under study has been largely ignored in the literature (Goulding, 2002; Lye, Perera, & Rahman, 2018). This research method is an inductive approach and is useful for comprehending complex phenomena (Locke, 2001; Lye, Perera, & Rahman, 2018). Inductive grounded theory discovery studies are uniquely situated to provide findings of importance in a field (Ferreira & Merchant, 1992). This study takes a methodological approach based largely on the work of Strauss and Corbin (1990) along with Charmaz (2000). Although grounded theory is often associated with qualitative research in the social sciences, there is a significant body of work that uses this research method within accounting, finance, and management research (Greenhalgh, 2000; Gurd, 2008; O'Reilly, Paper, & Marx, 2012; Prentice, 2015). As Locke (2001) argues, organizational dynamics are ultimately about people, and grounded theory is the best way to understand the complexities inherently at play within colleges and universities.

Because the emphasis is on people, it is important to address the selection of experts for the development of grounded theory. The qualitative portion of the study used semi-structured interviews, which help identify the organizational dynamics at play

in small private nonprofit colleges and universities. The interviews were conducted with a college president, chief financial officer (CFO), regional accreditors, external auditors, senior members of state commissions of higher education, and industry experts. Trustees play a critical role in the governance of a private college (Hendrickson, Lane, Harris, & Dorman, 2013). Among the functions they perform are setting mission, evaluating performance, and hiring and evaluating the president (Eckel & Kezar, 2016; Hendrickson et al; 2013; Weary, 2009). Most trustees are volunteers, working as senior level professionals outside of the college or university they serve (Eckel & Kezar, 2016; Hendrickson et al, 2013). This expertise from other industries offers analytic insights strategic planning perspectives that can challenge the status quo (Dickeson, 2010; Martin & Samels, 2009). Interviewing trustees combines the insights they have as stewards of the institution as well as their expertise outside of the academy.

The president and CFO have highly specialized expertise and serve the institution. Both, however, are likely to belong to networks of people in similar roles and are boundary spanners (Dickeson, 2010). A college president will spend a significant amount of time interacting with key internal and external stakeholders, including faculty, staff, donors, alumni, and policy makers (Eckel & Kezar, 2016; Hendrickson, Lane, Harris, & Dorman, 2013; Rabovsky & Rutherford, 2016). There has been increasing specialization and professionalization within the administrative functions of colleges and universities which leads to the exchange of best practices and isomorphism (Baltaru & Soysal, 2017; Dorantes & Peterson, 2020; Gornitzka & Larsen, 2004; Ramirez & Christensen, 2012). The internal and external stakeholder interaction of the president and

CFO, coupled with their expertise, make their interviews valuable contributions for this study.

Regional accreditors (Hendrickson, Lane, Harris, & Dorman, 2013), external auditors (Tahey, Salluzzo, Prager, Mezzina, & Cowen, 2010) senior members of state commissions of higher education, and industry consultants (Selingo, 2013) all have expertise in the field of higher education and analysis of colleges and universities. Hendrickson et al point out that accreditation functions as a partnership, with college leadership interacting with the experienced accreditors. The federal and state government relies on the professional assessment of the accreditors as they license and fund colleges and universities. External auditors have an industry specific focus and will generally audit multiple institutions. This gives the auditors a good breadth and depth of knowledge. Zapp and Ramirez (2019) suggest that the growing network of organizations with a focus on regulation of higher education, including those providing education, training, and networking, have created improvements in knowledge and exerted normative isomorphic pressures. The knowledge of this group of interviewees is a rich source of information regarding organizational dynamics and vulnerability.

Upon interviewing the experts, open coding should take place as soon as an interview is completed and transcribed. Open coding is the process of carefully reviewing the interview transcripts and fieldnotes line-by-line to identify concepts that fit the data (Corbin & Strauss, 2015; Goulding, 2002; Kelle, 2007; Strauss, 1987). Concepts are higher level themes that appear to share a common meaning or characteristic within the data. As a project develops and concepts emerge, axial coding should be conducted. Axial coding is the process of identifying and delineating interrelationships between the

concepts (Corbin & Strauss, 2015; Goulding, 2002; Kelle, 2007; Strauss, 1987). These interrelationships begin to form the basis for the construction of grounded theory.

After the emergence of categories and themes, an ex-post literature review should be conducted. The objective of this literature review is to identify existing work relating to the emergent themes. Strauss (1987) and Strauss and Corbin (1990) advocated for delaying literature reviews until the researcher had a more fully developed sense of where the work was headed (Lempert, 2007). The intent of the delay is to avoid tainting the emergence of themes and theory with pre-existing research. With the ex-post literature review, there is a solid foundation for final interpretation of the data, which is the last step in the process as emergent theory is developed.

With grounded theory research, questions may arise as to the quality of the findings. While conducting qualitative research, it has been argued that credibility, fittingness, ability to audit, and the confirmability of the findings are markers of rigor (Guba & Lincoln, 1981; Perera & Rahman, 2006). Creswell and Creswell (2018) recommend multiple validity procedures, including triangulation, member checking, using rich description, and clarifying author bias. Triangulation refers to using multiple data sources to confirm the researcher's interpretation of the data, which will be achieved using multiple interviews. Member checking involves follow up discussions with study participants to ensure that the researcher's interpretation is consistent with the interviewee's meaning. Rich description is achieved through detailed notes and memo writing relating to the interviews (Creswell & Creswell, 2018). Author bias is a concern in the interpretation of qualitative data. Dey (2007) discusses validity, noting that concerns about grounded theory tend to focus on face validity, or the extent to which

concepts are appropriate ways to interpret the data. Dey notes that validity is also established by the degree to which the developed theory is consistent with existing theory. If there is inconsistency, then the author must provide meaningful discussion and reflection regarding the departure from existing theory.

Conclusions

While there is a substantial body of work relating to financial analysis, there does not seem to be universal agreement regarding a predictor for institutional vulnerability within the literature. In addition, some of the literature indicates that other dynamics, including leadership and organizational factors, may affect an institution's ability to survive and thrive. As organizational factors are being considered, both resource dependency and institutionalism suggest that there may be similarities in organizational dynamics, which provides a good starting point for investigation of those organizational factors. There are three questions addressed by this research. The first question is whether a predictive organizational risk score framework can be used as a quantitative assessment of nonprofit private college vulnerability. Second, how do leaders in the nonprofit higher education world understand organizational vulnerability? Specifically, what are the factors that experts consider to be important indicators of organizational vulnerability? Finally, can the way in which nonprofit private college leaders understand organizational vulnerability be used to evaluate the organizational, leadership, or other related dynamics of the organizations with a predictive score indicating high risk?

Chapter 3

Research Methodology

To address the research questions, integrated mixed methods is used in this study (Moseholm & Fetters, 2017). The quantitative portion of the study addresses financial analysis as applied to small private colleges and universities in the New England and Southeast regions of the United States. This initial quantitative portion of the study is based primarily on the nonprofit metrics developed by Tuckman & Chang (1991), which have been tested empirically (Greenlee & Trussel, 2000; Mazanec & Bartosova, 2021; Tevel, Katz, & Brock, 2014; Trussel, 2002; Trussel & Greenlee, 2004), including in the education field. Concurrent with the quantitative portion of the study, the qualitative portion of the study uses grounded theory to develop an understanding of the organizational factors influencing institutional vulnerability and failure. This portion of the study is based on interviews with experts in the field of private colleges and universities.

Quantitative Study

The quantitative portion was conducted concurrent with the qualitative portion. The project used the basic framework of Tuckman and Chang's (1991) approach to nonprofit vulnerability coupled with the logistical regression research that has been conducted to develop predictions of financial vulnerability for nonprofit organizations (Greenlee & Trussel, 2000; Mazanec & Bartosova, 2021; Tevel, Katz, & Brock, 2014; Trussel, 2002; Trussel & Greenlee, 2004). Organization size was also included in the analysis (Trussel, 2002; Trussel & Greenlee, 2004). The detail regarding calculation of each item is in Appendix E. While this is a reasonable starting point for analysis, the expectation was that interviews with experts in the field of higher education would

identify factors that would enhance the predictive value of a logistic regression model. For that reason, an iterative, bidirectional approach was used for model development (Moseholm & Fetters, 2017).

The initial iteration of the model used the four basic ratios developed by Tuckman and Chang (1991) and further refined by Trussel and Greenlee (2004). These variables are summarized in Figure 2. The first variable is equity, which is an assessment of revenues relative to net assets. A larger value indicates greater net assets relative to revenue, which indicates financial strength. A higher net asset level is better able to absorb revenue shocks. The second variable is revenue concentration, which evaluates the variety of revenue sources. A lower value indicates multiple sources of revenue, which is desirable. Were there to be a shock to one revenue source, a college would still have revenue from other sources. The third variable, surplus margin, captures net revenue as a percent of total revenue. It is essential that a college operate at or above zero, indicating net income. Finally, size is included as a variable. Using the natural log of total assets, a larger organization should be better able to withstand financial shocks.

Figure 2: Variables for Quantitative Modeling

Indicator	Calculation
Equity	$\frac{\text{Total equity}}{\text{Total revenues}}$
Revenue concentration	$\sum \left(\frac{\text{Revenue}}{\text{Total revenues}} \right)^2$
Surplus margin	$\frac{\text{Total revenues} - \text{Total expenses}}{\text{Total revenues}}$
Size	<i>Natural log of total assets</i>

Figure 2. Variables for quantitative modeling. From Tuckman, H. P. & Chang, C. F. (1991). A methodology for measuring the financial vulnerability of charitable nonprofit organizations. *Nonprofit and Voluntary Sector Quarterly*, 20(4), 445-460.

The definition of risk is more challenging. The literature has suggested defining risk as decreases in program expenditures over a three-year period (Greenlee & Trussel, 2000), decreases in net assets of different percentages over varying time-frames (Trussel and Greenlee, 2004), or liabilities exceeding assets (Gordon, Fischer, Greenlee, & Keating, 2013). This study has used a 20% decrease in net assets over a three-year period to identify at-risk institutions, which is consistent with the work of Trussel and Greenlee (2004). Table 1 details the breakdown of at-risk institutions for each year of the financial ratio analysis.

Table 1

Total Number of Institutions Defined as At-Risk

	Not at Risk	At Risk
2016	762	44
2017	756	42
2018	751	37
2019	744	33
Total	3,013	156

Data was gathered for private nonprofit colleges and universities using the Integrated Postsecondary Education Data System (IPEDS). Step one was to use Carnegie Classifications to create a dataset of similar institutions (Carnegie Classification, 2021). Using the 2021 basic classification the sample was limited to small and medium master's colleges and universities as well as baccalaureate colleges with either an arts and sciences or diverse fields emphasis. The study was limited to private, nonprofit institutions. The study included all regions of the United States. This provided a total of 764 small private nonprofit colleges and universities for the sample.

In step two of the quantitative study, seven years of Integrated Postsecondary Educational Data System (IPEDS) data were collected for the 764 institutions and compiled in SPSS. This was for the years 2014 through 2020. The independent variables were equity, revenue concentration, surplus margin, and size. These variables are the variables identified by Tuckman and Chang (1991) and refined by Greenlee and Trussel (2000) as well as Trussel and Greenlee (2004). The dependent variable of financial vulnerability was defined as a 20% or greater reduction in net assets over a three-year period, which is the definition for vulnerability suggested by Tuckman and Chang (1991). The outcome of this training sample is what Altman (1968) and other predictive researchers classify as a predictive *Z-score*.

Qualitative Study

The qualitative portion of the study was based on semi-structured interviews. Following a semi-structured interview protocols a list of topics was prepared in advance, but specific questions were not prepared or asked (Corbin & Strauss, 2015). The interviews were conducted with a trustee, college president, chief financial officer, regional accreditor, external auditor, senior members of state commissions of higher education, and industry experts. The participants were associated with institutions in the New England and Southeast regions of the United States. A preliminary convenience sample was selected to begin the interview process. A convenience sample is one in which the participants are selected based on their accessibility (Morse, 2007; Richards & Morse, 2007). An invitation to participate in the study was sent to prospective participants and is included in Appendix A. After the initial convenience sample was selected, a snowball technique was used. A snowball technique is one in which the

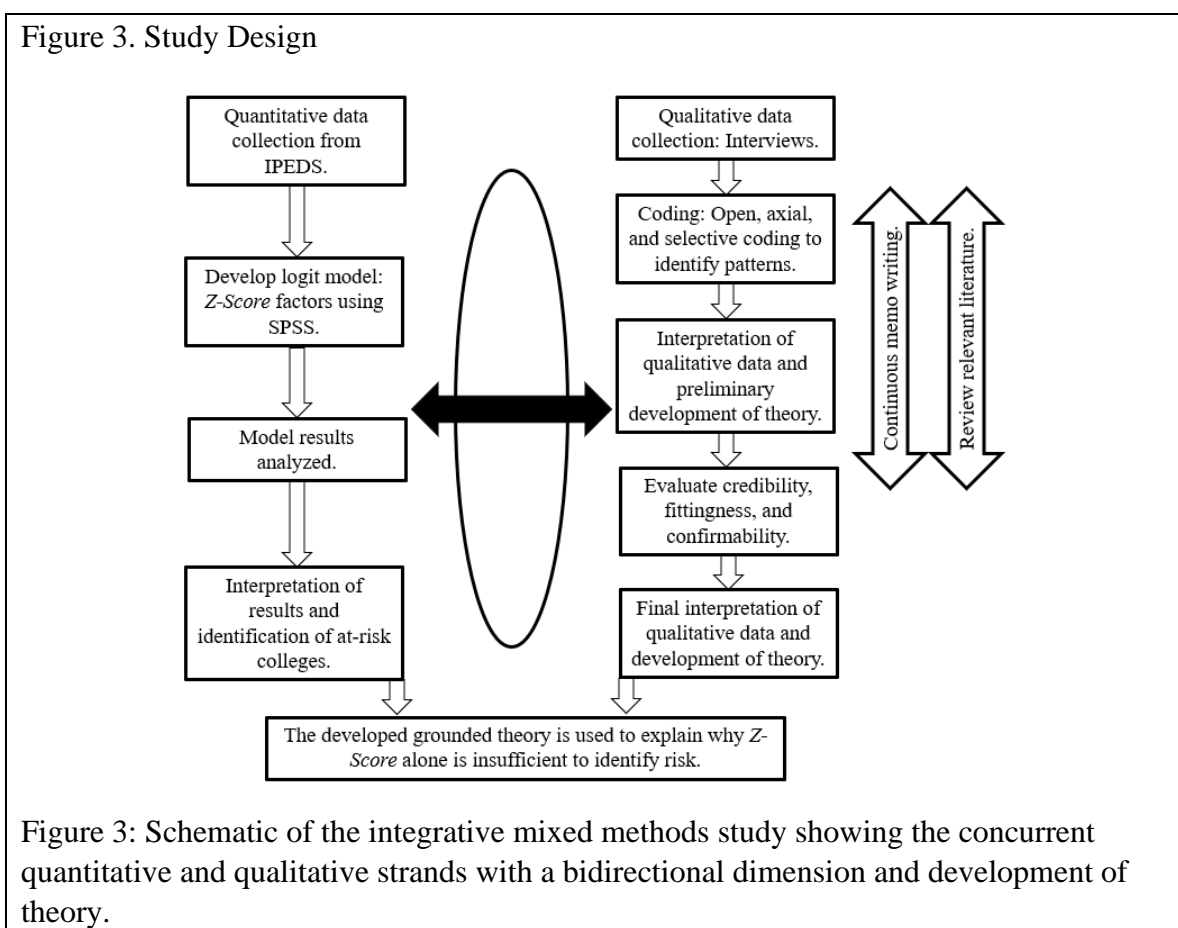
researcher requests introductions from the initial study participants to subsequent participants (Morse, 2007). An informed consent form was provided to all participants and is included in Appendix B. The consent form requested permission to record the interview. This study was reviewed and approved by the James Madison University Institutional Review Board (JMU Protocol #22-341). An interview topic guide was developed and is presented in Appendix C. The open-ended nature of the interview allowed the discussion to flow into unanticipated topics which became relevant to the study (Goulding, 2002).

Researcher introspection was part of the interviewing and research process. A continuous part of the qualitative research process was memo writing (Corbin & Strauss, 2015; Goulding, 2002; Harajli & de Lautour, 2006; Lempert, 2007). The memos were used to develop ideas and facilitate the generation of theory (Corbin & Strauss, 2015; Lempert, 2007). The memos were also used to guide next steps in the research project, including the collection of data, coding, analysis, and theory development (Holton, 2007). Each 60-minute interview was recorded and transcribed. Open coding took place as soon as each interview was transcribed. After the emergence of categories and themes, an ex-post literature review was conducted. Multiple validity procedures, including triangulation, member checking, using rich description, and clarifying author bias were included in the process (Creswell and Creswell, 2018).

Merging

Moseholm and Fetters (2017) describe data merging in an integrated mixed-methods research study as taking place on three dimensions. The first dimension is relational and describes how the data is brought together. In this study that is described

as iterative, with the results from the quantitative and qualitative strands informing each other as the study progresses. The methodological dimension refers to emphasis placed on the quantitative and qualitative portions of the research. This study used the insights from both strands to develop greater understanding of the whole, which is equivalently driven. Finally, the way in which the quantitative and qualitative research is merged is called the directional dimension. This study used analysis from both the quantitative and qualitative research strands as the study was drawn together, giving it a bidirectional dimension (Moseholm & Fetters, 2017).



Chapter 4

Research Results

Overview

Chapter IV describes the data results from the two strands of the research study. The chapter will begin with a presentation of the quantitative research results. The quantitative analysis will address the first research question, which is whether a predictive score framework can be used as a quantitative assessment of nonprofit private college vulnerability. The second portion of the chapter will present analysis of and findings from the interviews conducted with experts in the field of higher education. This will help address the second research question, which is how do leaders in nonprofit higher education understand organizational vulnerability? The chapter will then illustrate how the two strands inform and refine each other. That will address the third research question, which is can the way in which nonprofit college leaders understand organizational vulnerability be used to evaluate the organizational, leadership, or other related dynamics of the organizations with a predictive score indicating risk? Chapter IV concludes with a summary of the results.

Quantitative Research Results

The purpose of the quantitative portion of the study was to determine whether four variables identified in the existing literature can serve as predictors for organizational success or failure for small private colleges and universities (Greenlee and Trussel, 2000; Trussel and Greenlee, 2004; Tuckman and Chang, 1991). The predictors are equity ratio, revenue concentration, surplus margin, and size factor. Equity ratio describes the relationship between net assets and liabilities, with an organization seeking to have assets that adequately cover the outstanding obligations. Revenue concentration

is a ratio that describes the variety of sources of revenue for a given institution. Ideally, an organization has a variety of revenue streams so it is not overly dependent on a single source, such as tuition. Surplus margin is the ratio of net income to net assets. This value should be positive, and larger is better, for healthy institutions. It has been argued that larger organizations are more resilient, so the size of the organization as defined by total net assets is included as a predictor.

Seven years of data was collected for 764 small, private, nonprofit colleges and universities within the United States. For this study a small institution was defined as one with fewer than 5,000 students. The data was collected from the Integrated Postsecondary Education Data System (IPEDS) for the fiscal years ending 2014 through 2020. Detail of the mapping and coding is in Appendix G. The data was imported to Excel to perform calculations for the four independent variables of equity ratio, revenue concentration, surplus margin, and size factor. Using IPEDS, the equity ratio was calculated as total revenue divided net assets. The net income ratio was calculated using total revenue minus expenses divided by revenue. The size factor was the natural log of total assets. Revenue concentration was broken down in six categories of tuition, federal funds, state funds, private donations, investment income, and all other sources. The revenue concentration was then calculated as the sum of the squares of each source as a percent of the total revenue for each college.

The dependent variable of financial vulnerability was defined as a 20% or greater reduction in net assets over a three-year period, which is the definition of vulnerability suggested by Trussel and Greenlee (2002). The outcome of this training sample is what Altman (1968) and other predictive researchers classify as a predictive Z-score. The data

from IPEDS was imported to an Excel workbook to calculate the change in net assets over each three-year period. Institutions with a 20% or greater decline in net assets were coded with a 1 to identify them as at-risk in the model. There were several institutions for which the three-year decline in net asset calculation could not be completed due to closure. Those colleges and universities were included in the modeling and coded with a 1 indicating they were at-risk.

The modeling was based on the existing literature in the nonprofit field, which uses regression modeling to develop a predictive score. The predictive score was used to anticipate whether a given institution will be identified as at-risk in the subsequent year. This model used the financial ratios for fiscal year 2019 to determine whether they could identify institutions with a 20% decline in net assets between the fiscal year ending 2017 and the fiscal year ending 2020. Table 2 details the number of colleges and universities included in the study, including those classified as at-risk for each year of the study.

Table 2

Summary of At-Risk Institutions by Year

Change in Net Asset Period	Ratio Period	Not at Risk		At Risk		Total
		Number	Percent	Number	Percent	
2014-2017	2016	718	94%	44	6%	762
2015-2018	2017	714	94%	42	6%	756
2016-2019	2018	714	95%	37	5%	751
2017-2020	2019	711	96%	33	4%	744
	Total	2,857	95%	156	5%	3,013

The data was imported to and modeled using SPSS. The equity ratio is the relationship between the net assets of the institution and the total revenue, with a greater result interpreted as better. Revenue concentration is an expression of the diversity of revenue sources, with smaller values representing greater diversity of revenue streams. A college with strong revenue from multiple sources would be perceived as less at risk than one with a single source of income. Surplus margin is the percent of revenue that is retained after expenses, with larger values viewed as better. In the model the surplus margin was entered as decimal values. The size factor is the natural log of the total assets of the college. The perception is that a larger organization is more resilient to financial shocks, so larger size is better. A summary of the descriptive statistics is provided in Table 3.

Among the four independent variables of equity ratio, revenue concentration, surplus margin, and size, all exhibited skew with the exception of size. The equity ratio was negatively skewed while the revenue concentration and surplus margin were positively skewed. The skew and kurtosis are summarized in Table 4. While the sample exhibited skew and kurtosis, it has been argued that for large samples it is unlikely that significant skewness differs from normality (Tabachnick & Fidell, 2007). Similarly, with samples exceeding 200, overestimates and underestimates of variance from significant kurtosis may be eliminated (Tabachnick & Fidell).

Table 3

Summary of Descriptive Statistics

	Min.	Max.	Mean	Std. Dev.	Var.
Equity Ratio	-155.684	67.346	2.407	4.069	16.557
Revenue Concentration	0.212	1.000	0.458	0.131	0.017
Surplus Margin	-7.126	11.240	0.033	0.327	0.107
Size Factor	12.388	22.312	18.859	1.128	1.273

Table 4

Summary of Skew and Kurtosis

	Skewness		Kurtosis	
	Statistic	Std. Error	Statistic	Std. Error
Equity Ratio	-15.419	0.045	808.974	0.089
Revenue Concentration	1.182	0.045	2.368	0.089
Surplus Margin	7.784	0.045	553.116	0.089
Size Factor	-0.172	0.045	1.369	0.089

Additional analysis was conducted to identify any differences in the descriptive statistics between not-at-risk and at-risk organizations. The equity ratio differed between the two groups, with healthier organizations having a mean equity ratio of 2.494 while at-risk institutions had a mean equity ratio of 0.817, $t(3,013)= 5.032, p<.001$. Surplus margin also exhibited a significant difference between the two groups, with healthier institutions having a mean of 0.041 while the at-risk colleges had a mean of -0.120, $t(3,013)= 6.048, p<.001$. The means for size were also significant, with not-at-risk institutions having a mean size of 18.929 compared to 17.577 for the at-risk institutions,

$t(3,013) = 15.117, p < .001$. The variance for revenue concentration was not significant. There does appear to be collinearity between the equity ratio and surplus margin, with a correlation coefficient of 0.928. This is not surprising given that the two ratios share revenue as a denominator. None of the other variables appear to be redundant. A correlation matrix is shown in Table 5.

Table 5

Correlations Among Study Variables

	1	2	3
1. Equity Ratio			
2. Revenue Concentration	0.194		
3. Surplus Margin	0.928	-0.174	
4. Size Factor	-0.257	-0.066	-0.259

A logistic regression model based on seven years of data for 764 small private nonprofit colleges was used to determine whether at-risk status of an institution could be predicted based on the financial ratios in the preceding year. Given the collinearity between equity ratio and surplus margin, the regression model was generated using each of those independent variables alone in combination with revenue concentration and size. Surplus margin yielded the best prediction of at-risk status, with a Cox and Snell pseudo R^2 of .075 as compared to a pseudo R^2 of .067 for the model using equity ratio. The logistic regression model in which at-risk status was regressed on revenue concentration, surplus margin, and size factor is statistically significant, $\chi^2(3, N=3013) = 233.69, p < .001$. Surplus margin and size factor statistically significantly predict the likelihood that a college may be classified as at-risk. Revenue concentration did not statistically

significantly predict the likelihood that a college may be classified as at-risk. The logistic regression coefficients are detailed in Table 6.

Table 6

Logistic Regression Coefficients for Surplus Margin Model

	<i>B</i>	(<i>SE</i>)	Wald	O.R.
Revenue Concentration	0.198	0.682	0.084	1.218
Surplus Margin	1.519	0.291	27.185	4.567
Size Factor	1.086	0.087	157.033	2.964
Constant	-17.042	1.600	113.456	0.000

The logistic regression model in which at-risk status was regressed on equity ratio, revenue concentration, and size factor is also statistically significant, $\chi^2(3, N=3013) = 209.46, p < .001$. Equity ratio and size factor statistically significantly predict the likelihood that a small private nonprofit college may be classified as at-risk. Revenue concentration did not statistically significantly predict the likelihood that a college may be classified as at-risk. The logistic regression coefficients are detailed in Table 7.

Table 7

Logistic Regression Coefficients for Equity Ratio Model

	<i>B</i>	(<i>SE</i>)	Wald	O.R.
Equity Ratio	0.039	0.013	9.096	1.040
Revenue Concentration	-0.445	0.671	0.441	0.641
Size Factor	1.046	0.085	150.340	2.845
Constant	-16.093	1.588	102.755	0.000

Based on a model using surplus margin, and holding scores of all other predictors constant, surplus margin is positively related to the likelihood of a small private nonprofit

college being identified as not at-risk. For every unit increase in surplus margin, the odds of the college being classified as not at risk improve 4.6 times. This makes it clear that colleges cannot sustain continued operating losses without becoming vulnerable. The surplus margin-based model also indicated that size impacts at-risk status, all other variables held constant. For every unit increase in size factor, the odds of being classified as not at risk improve three-fold. An institution with significant financial assets is better able to withstand financial shocks than an institution with limited resources.

Overall, the quantitative model only provided a partial explanation and appears limited in its ability to help identify those institutions that were at risk. The question of why quantitative modeling fails to readily identify at-risk colleges makes it ever more important to understand what other factors may impact small private colleges and universities. The qualitative strand of the research helps address those factors.

Qualitative Research Findings

The purpose of the qualitative research was to develop an understanding of the factors that higher education experts consider to be important indicators of organizational vulnerability. Further, would insights from the experts reshape the quantitative model? Eleven people were interviewed to gain insights. The interview participant's experience included college trustees, college presidents, college CFOs, former secretaries of education, industry consultants, external auditors, and commercial lenders. A summary of the participants is shown in Table 8. The institutional experience included both large and small institutions and both privates and publics. Their experience spanned decades and included successful institutions and those that are facing challenging times.

Table 8

Participant Characteristics (N=9)

Participant Pseudonym	Role	Experience
Participant 1	Commercial Banker	MBA; 20 years incl. working w/ small private colleges
Participant 2	College President	Ph.D; 30 years at multiple small private colleges
Participant 3	Industry Consultant	J.D.; 30 years in higher education, incl. state Secretary of Education
Participant 4	Industry Consultant	J.D.; Over 40 years in higher education at federal and state level
Participant 5	Industry Consultant	B.A.; 30 years as higher education consultant
Participant 6	College Trustee	MBA; 40 years as corporate V.P.; 15 years as trustee for two small private colleges
Participant 7	College CFO	B.A.; 25 years serving multiple small private colleges
Participant 8	Auditor / Consultant	M.A.; 15 years as auditor and consultant focused on higher education practice
Participant 9	College Senior V.P.	MBA; 25 years serving a variety of institutions across the country

Each participant was interviewed with notes taken during the interviews. The interviews were also recorded with permission of the participant. The recorded interviews were transcribed and entered into NVivo 12. Each interview was reviewed and coded in the initial open coding stage. This was followed with an axial coding stage as the data was further analyzed. The coding process led to the identification of themes that may impact organizational success for small private colleges and universities. The

axial coding was used to help develop a grounded theory that explains what organizational factors may influence the success of small private colleges and universities. This may also provide insight and guidance to assist leadership, both inside and outside the institutions, maintain organizational sustainability.

The codes were reviewed and as patterns began to emerge categories were developed. This process was aided through the creation of memo writing after each interview and as the data was being analyzed. The emergent patterns were developed into themes, which shaped the development of the grounded theory. To understand organizational success, one needs to understand the organization, which include finances, leadership, and assumption of risk. There is a dynamic relationship among those three factors within institutions, making analysis complex. In addition, the success of a college is shaped by the students, with an emphasis placed on enrollment, experiences, and outcomes. The organizational dynamics and the student dynamics influence one-another, adding complexity to the ability to assess success or failure of a college. Finally, environmental factors, such as the geographic location and macroeconomic factors were viewed as critical determinants of success. While the organization and the students have limited ability to change the environment, the environment does impact the organization and the students. Ultimately, the organization, the students, and the environment shape organizational success or failure.

Organizational Factors

Finances

If the metrics used in the model had limited predictive value, then it is important to understand why metrics may fail to identify vulnerable institutions and learn what leaders do look at when defining vulnerability and risk. Informants were asked what metrics they thought were important for assessing organizational health or vulnerability of a private college or university. The intent was to gain a better understanding of organizational assessment from the perspective of the experts and to identify whether there were any additional variables that may improve the quantitative model. What emerged was an understanding that the metrics used to assess organizational well-being are unique for the higher-education industry and may vary from institution to institution within the industry, depending on each organization's individual competitive situation.

The participants indicated that the metrics for colleges and universities are unique relative to other organization types. "This business produces something much more ineffable than the traditional widget, so your ability for judging the success or productivity of an institution can be measured" in a variety of ways (Participant 2). A similar observation from Participant 1 was that even a typical business calculation, such as debt coverage, "is going to be calculated very different for a college and university than it is for a normal business." That calculation will be based on net worth, but also include, according to Participant 1, "enrollment and top-line dollars and understanding where those need to be." Reframed, while an underwriter usually looks at income to understand the ability to meet debt obligations, the risk assessment for higher education is

going to include an additional look at tuition as a revenue source, and the quality of that revenue stream.

Within the context of colleges and universities, enrollment related metrics were frequently cited as valuable for assessing institutional well-being. Participant 1 commented that they “look at both projected enrollment and then also projected enrollment versus actual enrollment.” They went on to note that they also look at “retention rates and retention numbers because so much of a college is dependent on revenue from students, so those trends have to be going in the right direction.” It is important to note that this was being evaluated at an individual institution level.

Another concept emerged from the interviews relating to enrollment, which was the type of student being admitted. Informants suggested this may be more difficult to describe and measure. One person described it as ensuring you “continue to have the number of applicants and the kinds of applicants that you are looking for.” Tuition can be complicated to understand, as explained by one senior leader:

It's often more complex than just the final number. The one year I remember we had an exceptional year and exceeded our model number by almost 10%. It was remarkable and we were all thrilled. But I remember telling our VP of Admissions, ‘We need to understand what happened because none of us do. You don’t. I don’t.’ I said, ‘It happened. We ended up on the good side this time, but if we were 10% down that would be really bad. We need to understand this.’ So it’s not just the number it’s how did you get there. (Participant 7)

Tuition is closely intertwined with enrollment and was often cited as an important metric to include while assessing a college or university. One way in which tuition is linked to enrollment is through selectivity. An institution that is “very selective can command a higher net revenue,” in the view of Participant 2. In that situation, a college “needs fewer students for the same operating vitality that a different institution with lower net revenue would need.” While difficult to capture, the market or brand power that an individual college commands becomes important to understand. Several people pointed out that it is net tuition that matters. In the words of Participant 7, “it’s all about net tuition revenue.” This was most often referenced as looking at an individual college’s trend, as indicated by Participant 9, who “looks at the net tuition revenue per incoming student year-over-year” as a key performance indicator.

Beyond tuition, several respondents felt that auxiliary fees, especially room and board were an important item to understand. Participant 8 was surprised at the larger size of profit margins from room and board when they first began analyzing the industry. This dynamic is raised by Martin (2013), who describes bundling of services in higher education. The education as well as the other goods and services, including housing, food, entertainment, and health care, are all exclusive. The consumers are willing to pay more for the bundled goods than they would have paid for the goods separately, creating sizable margins for colleges and universities on auxiliary fees.

An institution’s endowment was a frequently discussed metric in the interviews. The endowment is important as it may be used to support students’ tuition. One informant cited an institution that funds numerous student scholarships through endowments. Several informants stressed the importance of understanding the numbers,

especially endowment per student. Two people cited the same example of an institution with high endowment per student, noting that the college has more of an enrollment problem than an enviable endowment. Declining enrollment with an unchanging endowment would show a favorable trend in endowment per student but represent potential vulnerability for an institution.

With endowments as a frequently discussed subject, it may not be surprising that many of the participants also described fund raising an important means of assessing a college's well-being. Jeffrey (2009) notes that the fund-raising process is beneficial for struggling colleges for a variety of reasons. The inflow of funds is critical, but it also serves to broaden the organization's base of support through the network of donors. Donors like to feel that colleges value their input as well as their donations (Jeffrey, 2009). This further illustrates the importance of the boundary spanning role of college leadership as they work with a key constituency.

Expenditures were identified as a key performance metric. Deferred maintenance, in particular, was identified as important to understand. Referring to one campus they served, Participant 7 commented that "there was so much upkeep that was needed." The impact of deferred maintenance, or simply keeping the campus clean, was illustrated by an informant who was also visiting campuses with their soon-to-be-freshman child.

I saw the two colleges on the exact same day, back-to-back. The only thing I would have said about the private college that disappointed me was the residence hall they took me into. The front door was not painted. I mean, just the paint was peeling and it looked terrible. I mean we were walking into the dorm and it was something that could be fixed in an hour

for \$50. And that would have – I mean, that would have made everything kind of equal in most respects. It’s just that little thing that I thought, wow, if somebody had noticed that or said something, because it caught my eye as I was walking through. Why does that look so bad? (Participant 5)

The interviews made clear that assessing financial health is largely unique to each institution. Addressing the institution level variation, one person noted that, “we’re going to track for vulnerability, so if we think the balance sheet is vulnerable, we’re going to track the balance sheet more than we are going to track recurring income. If we think recurring income is vulnerable that is what we are going to track.” Another person indicated that “there is always the challenge of coming up with the right summary measures, the right descriptives, statistics, the right explanation.” This was further reinforced when it was noted that “metrics really are situational.” A risk manager summed it up best, noting that it is “more experience dealing with organizations than an industry.” Their argument was that there is no single discrete value they look for in a given metric and apply to all colleges and universities that underwrite for credit risk. Each institution is evaluated individually in the context of its historic trends and relative to a peer group.

One of the more interesting themes to emerge from the interviews was viewing metrics and analysis in student centric terms. One person commented that the student “is the entryway to the university and eventually will come into the ecosystem from multiple other directions or reenter it, but it’s the first place, it’s the first impression, and you fail that and you have failed everything else afterwards.”

It's a metric you can get to eventually, but our students and alumni feeling that that actually worked? Did that pay off? Did they get an education? Did they learn? Did they feel like I spent four years here and it was transformative, which is what it should have been, if your spending years and thousands of dollars for an education, there should be a transformation both relationally and intellectually. And so I think that you can get the metrics to maybe measure that, but it's the idea of was it worth it for a student? Because I think that is a very important thing. If a student does not think it was worth it, are they going to be engaged alumni? Are they going to have their kids go to that school? (Participant 8)

The student centric perspective was evident based on some of the metrics identified by informants. Participant 6 talked about the senior administration and the board reviewing mental health and Title IV metrics as indicators of organizational success. Others noted that student and alumni engagement is an indicator of institutional health. While there are a variety of ways to measure engagement, two of the longer-term metrics identified by informants were alumni giving and career development. In one case the informant noted that many of the small private colleges have a liberal arts focus, but still prepare students for their careers.

Leadership

To understand how organizational dynamics shape institutional success or failure, the interviews explored leadership within the context of higher education. Informants were asked to identify who leads private colleges and universities. Having identified

those leaders, participants were asked to describe what it means to be an effective leader in a private college or university. What skills do leaders need to possess and how do they impact the performance of the institution?

Across the interviews there was consistency in identifying most of the senior leadership at small private colleges. Every interview included a discussion of the board of trustees, the president, and the provost as institutional leaders. Most of the participants also identified the cabinet as leadership, which included deans, finance, and institutional advancement. Less frequently mentioned were the Registrar, Vice President of Student Life and the Vice President of Research. Participant 3 discussed the significant impact that the Registrar can have on the strategic direction of an institution via decision making and policy. Participant 3 also noted that the Vice President of Research can shape the direction of a college with the information they gather and present. Three different participants noted the role of the VP of Student Life in shaping the student experience on campus, drawing connections between that person's leadership role and institutional performance.

During the interviews there were only two references to faculty as leaders on campus. Participant 4 was focused on the various ways that professors serve as leaders. First, they have a deep understanding of the institution, the students, and the programs. Participant 4 felt that professors should be "out there telling people about the product." Second, the participant felt that professors should be connecting with employers and working to understand their needs. This information would help ensure that the college was focused on developing the knowledge, skills, and abilities that would create long-term value for both the student and society. Finally, the participant felt that the research

conducted by faculty serves as means to advance the mission of the college and enhance the classroom experience of the students. One other participant did observe that based on their experience in both small and large public and private colleges, they felt that faculty leadership at their current small private college was minimal.

If there are numerous leaders, many whose roles may be unique to the field of higher education, is the act of leading also unique within higher education? The job of college president was summed up by Participant 3 who stated that “it is not a job for normal people.” The job is different than leading a traditional business and requires a specific skill set. There are four key areas that emerged from the interviews. College leadership must be able to develop and share a strategic vision for the institution. Leadership also must possess an ability to work with people. The leaders must possess boundary spanning skills. Finally, leaders, especially trustees, presidents, advancements officers, and deans, must have an ability to raise funds for the college. Other than fund raising, these skills are no different than those required for leaders of other organizations. It is the organizational setting that forces leaders to develop some unique skills and approaches.

The participants identified a number of skills as important for higher education senior leaders. Most frequently noted was the boundary spanning skills required by senior leaders. Senior leaders need to “communicate who we are to a lot of external constituencies, because that impacts our ability to achieve our mission,” according to Participant 1. Effective leaders were identified by Participant 3 as those who “could bring as many broad constituencies as possible to the table to buy into the vision of the institution.” Participant 4 noted that effective leadership involves “getting your name out

there and having people invest in your product.” Within that context, Participant 4 felt that the board of trustees, provost, and deans all had a role in “selling the product” and helping the broader community understand the impact of the institution.

Study informants identified development and articulation of strategic vision as a key aspect of leadership. This was not a solo effort, however, with one participant noting that “leadership is about the shared responsibility for developing whatever that vision is, whatever that larger objective is, and then assuring it can be achieved.” According to Participant 2, the vision needs to be forward looking, as “leadership is proactive change.” Participant 3 succinctly stated that leaders need to be asking how they can be moving the organization forward. While there would be little argument that the plan for the future is important, Eckel and Kezar (2003) point out that visions need to be flexible, providing the institution with the ability to adapt to changing situations. As the vision for the future is developed, Participant 2 felt that leadership is “the guiding principle that links development of vision and sense of self” as organization members work toward that goal. The recognition of the connection between the organization and its members takes a holistic view that is reminiscent of Zohar (1997), who recognized the importance of recognizing the humanity of organization members (Manning, 2018). It is critical that organization members feel a sense of ownership and desire to work toward attainment of the vision.

The experience of the participants was diverse, allowing them to draw comparisons across their institutional experience. Some of the participants noted that effective leadership differs based on the institution. Large institutions were felt to have a focus on “delivering relative to plan,” in the view of Participant 9. The plans may

include reporting criteria not found in smaller institutions, such as auxiliary revenue streams, grants, or publications. Bess and Dee (2012a) suggested that organizational dynamics varied between large and small colleges, with larger institutions more likely to be specialized and bureaucratic. Smaller colleges may have more flexible roles with people performing multiple functions. Participant 9, who has experience as a senior administrator at both large and small institutions noted that at a small private college “more time was consumed in motivational speaking.” Participant 9 felt that politics may be more severe in smaller institutions. They observed the challenge of making extremely difficult decisions regarding staff and then seeing those impacted individuals at the grocery store the next day or being unable to discuss work in a restaurant. This lack of anonymity and close proximity to the impact of decisions at a small college in a small town may create greater hesitation when the decisions have negative consequences.

Numerous participants discussed an ability to work well as a team as critical to organizational success. They identified empowerment and delegation as one of the key attributes of effective leadership. Some of that begins with shared responsibility for developing the strategic vision. Empowerment and delegation are also important for effective leadership in execution of strategic vision. In the view of Participant 7, an organization needs to depend on “leadership dispersed throughout an organization.” Senior leadership is tasked with “thinking about things and trying to analyze.”

With a broad array of constituencies, senior leaders in higher education find themselves needing to work outside the organization to ensure success. Participant 3 felt that a key to a successful organization was an ability to ensure that all of the constituencies understood the mission and direction of the college. Participant 6, among

others, identified the importance of working well with people inside of the organization to create a culture of success. While the internal constituency and environment is important, it is also important to interact with the external environment as well. Bess and Dee (2012b) describe boundary spanning as interacting with the external environment to exchange information. Participant 4 framed boundary spanning from the perspective of successful colleges needing to work closely with both individuals and businesses outside of the organization because they can provide support to the institution. Participant 3 emphasized the importance of positive relationships with local, state, and national governments and their agencies.

Effective boundary spanning can impact organizational success in two ways. First, an organization is able to gather information from the external environment and use it to shape their strategic direction (Bess & Dee, 2012b). In some cases, that may be learning best practices from peers at similar colleges. As an example, Participant 7 described exchanging information with CFOs from other small private colleges as they sought ways to optimize performance. The exchange of information is important for all levels of leadership. Weary (2009) observed that trustees at colleges engage in boundary spanning to remain current with higher education trends and best practices. For at-risk colleges, Cormier (2009) identifies the roles of the president, chief financial officer, chief academic officer, and institutional research in strategic planning. All four of these people must be working collaboratively and asking the right questions to shape direction, and those questions are developed through relationships with multiple constituencies, both inside and outside the organization.

Boundary spanning also shapes organizational outcomes through the flow of information out of the college to the broader community (Bess & Dee, 2012b).

Organization members, especially the president and trustees, represent the institution in the community. In their interactions with the public, college leaders represent institutional values (Cormier, 2009). It is in the outward facing boundary spanning role that the role of leader becomes broader. Participants 3 and 8 both discuss the public facing role of faculty, which means they too are important boundary spanners. Faculty may represent the college in their interactions with policy makers, donors, parents, or employers.

Boundary spanning requires good communication skills. Leaders need to communicate with each other, the organization, and the broader community with regularity and consistency. According to Participant 4, leaders need to “constantly be in communication, sharing information, understanding the kind of environment they are in and how their decisions impact other parts of the institutions.” Messages need to be “precise and tied to the interest” of the institution. In some cases, it was described as an ability to communicate frankly but tactfully. One informant identified communication of positive messages as much easier than difficult messages. When communicating challenging issues, they needed to craft the message and seek suggestions for resolution of the issues, when appropriate.

Although boundary spanning was identified as critical for the success of a small college, it is important to note that individuals assessing institutional risk see limits to reaching outside the organization. Participant 1 emphasized the knowledge, skills, and abilities of the management team. In their view, an over-reliance on external expertise

may be a harbinger of institutional risk. If leaders continually look to outside expertise to fill their knowledge gaps, they will find themselves unable to effectively solve problems on their own. This inability to problem-solve can create internal weakness when a situation arises that cannot be readily addressed by the external consultants. A vulnerability is created when poor decisions are made in the absence of assistance and an over-reliance on outside help.

As institutions adapt to change, senior leadership, especially the board of trustees and the president, must have the ability to make and execute difficult decisions. This is perhaps most challenging when “reviewing how [an institution] spends their money to make sure it’s being done efficiently.” Participant 4 noted the need to ensure a college or university is “making the best use of the funds they have, that they’re stopping programs that are no longer effective and are supporting those that are effective.” Participant 8 stated that colleges that do not change “will be the ones who disappear.” Avoiding that “requires a president to be controversial at times and not always have the faculty at 100% agreement.” Participant 8 summed up the difficulty faced by senior leaders by asking, “do you choose to take the pain on yourself, or do you force the market and it puts the pain on you?”

How do you deal with these capital promises you’ve made to people? We need to back off on that because we’re going to be put in a bad place as an institution if we are not careful. The point here is each institution needs to think about where they are with that. Is that [capital project] going to attract more students? No. But it will help us educate the students better. So it is not generating revenue, it’s going to be sitting on our books as debt

for a long time or we're going to be raising money for a long time. What would that money do if it went to scholarships? What would it do if it went to this or that? And those are the questions we have to ask all the time.

Senior leaders cannot adapt to change without conducting environmental and risk assessments. On a foundational level, Participant 1 said they are always asking whether an "organization understands the risks correctly." Understanding the risks allows an organization to develop contingency plans. Participant 1 stated that "the best leaders are the ones that have already thought [the risks] through so they can address the issues immediately versus the ones that have to take time to react." This type of planning was illustrated by Participant 7 who described an institutional enterprise risk management (ERM) process that included developing numerous financial scenarios. Their institution saved valuable time reacting to the 2008-2009 financial crises by already having a board approved response plan in place.

Their enrollment figures were not good. They had been declining for three years and were not looking good for the fall. And so they were not in a great financial state because of that and the trends were not positive.

However, the VP of Finance at the time let us know that their trends were not looking good, how they got there, what they planned to do to correct it, and when it would hit. You can look back and say they did not do a great job of managing the last five years, but you can just as easily say that's a strong leadership team because they identified the problem, they

corrected the problem, and they already are on the upswing and projecting to pull out of the problem.

Delegation was identified previously as a key attribute while defining leadership. Several informants also described confidence and knowing one's own abilities as important skills. When reaching limits of abilities or time a leader needs to seek help or delegate. In the words of one person, "if they are really good leaders, then they will disperse responsibility through the organization so that they are not trying to be everything to everybody." Participant 7 shared that their job is to "make [the leader] invisible, and I think that is a good thing as I am giving them more responsibility." While delegation is desirable, it has limits. Participant 1, who assesses the vulnerability of institutions, described observing whether "leaders are always deferring" when answering questions and whether they exhibit confidence in their responses.

One area where the boundary spanning and communication skills are most critical is in the area of fund raising. Leaders are "accountable for the monies they are raising" for the college or university, according to Participant 4. Fund raising was tied to personality, with Participant 1 recognizing the importance of a president "with the personality to raise funds or to develop a team to raise funds." Fund raising is also tied to vision and mission. Participant 2 offered that their living the "core mission in an intimate and authentic way" has made them a more authentic fund raiser.

Risk Tolerance and Risk Taking

Individual and institutional risk assessment and willingness to assume risk were identified as a factor for institutional success in the interviews. Among the critical skills

required for senior leadership was the ability to take measure of the internal and external environment and respond accordingly. This inherently requires an ability to both assess and assume certain levels of risk. In general terms, risk has been viewed as uncertain future events that impact an institution's ability to meet its objectives (Wessels & Sadler, 2015). Risk may arise from either internal factors or external factors (Shevchuk, Starukh, & Vaskiv, 2020). Internal risks arise within an institution and are viewed as more controllable. Examples may be fiscal management, violation of NCAA rules, or violation of state or federal regulations (Strikwerda, 2014). External risks come from outside the institution and are viewed as uncontrollable. An example of an external risk is shifting demographics which reduce the number of college age students. Risk management is described as the management of organizational activities under conditions of uncertainty with the incorporation of risk prediction and risk mitigation (Shevchuk, Starukh, & Vaskiv, 2020).

After assessing internal and external risks, institutional leadership must decide how much risk they are willing to accept. According to Participant 7, "you must figure out how much risk you have the tolerance for as an institution." A phenomenon identified by some participants was the unwillingness for larger, financially stable institutions to take risks. Participant 9, with experience at a larger, financially secure private institution noted that "they were not willing to take too many risks." Participant 8 stated that "the worst institutions in terms of willingness to take risks were the ones who could afford the most risk." Participant 7 witnessed a college that opted not to make a change that would have resulted in significant annual expense savings in an effort to avoid controversy regarding the decision. Participant 4, a former secretary of education

and national consultant, observed that institutions tend not to change, especially if the change entails risk, unless the change is necessary.

The reluctance of those with means to take risks is not a new observation. In his St. Petersburg papers, Daniel Bernoulli observed in the 1730s that the utility an individual derives from a marginal increase in wealth is inversely related to their current wealth (Bernstein, 1996). According to Bess and Dee (2012b), anticipated utility is the likelihood that the decision maker will personally benefit from the choices they make. Purposive decision making is the weighing of costs and benefits of decisions. Abraham (1999) identifies the need to assess both hard and soft costs during risk analysis. Hard costs are the actual dollars expended on a given issue. Soft costs are more challenging to identify and quantify, but no less real, especially to the people involved. Among the soft costs associated with risks are reputational harm, decreases in applications, or emotional harm. Decision makers will estimate the chances of different outcomes and make an evaluation of those outcomes relative to their own valuation of the outcome, selecting the decision that maximizes their utility (Bess and Dee, 2012b). Although this emphasizes the personal impact, Kasperson et al (1998) make it clear that organizational risk is a ‘psychological, social, and cultural process.’ This recognizes that the impact is broader in scope than the individual decision makers. This organizational breadth was identified by one informant who said:

I think that is where senior leadership needs to be. How do we change our enrollment strategy or how do we change our development strategy? If you are a finance person, how do you structure debt? How do you do things that are complicated that take a lot of time in strategic planning that

also are risky? They are the ones who actually take the risk. There might be someone below them to carry it out, but [the leaders] are the people who should be talking to other leaders in the field to figure out what is working, what is not working, and how do we change? (Participant 8)

McWilliam (2007) shifts the risk conversation in higher education institutions toward the distinction between risk taking and efforts to minimize or eliminate risk. McWilliam notes that risk management is about both a careful approach toward assumption of risk in addition to minimizing or mitigating the risks that an organization faces. The risks that an organization faces include physical risks, liability risks, fiscal risks, business risks, and reputation risks (Abraham, 1999). The context of this study is largely focused on fiscal and business risk, but the other types of risk are germane. In the view of McWilliam and Gallagher (2000), among others, the focus of higher education leadership has become one of minimizing organizational risk. Rather than identify ways in which an organization can take chances toward growth, they identify the potential for problems and focus efforts on mitigating those risks. It was suggested by Tufano (2011) that taking a strictly risk avoidance approach to risk management in higher education will weaken colleges and universities (Wessels & Sadler, 2015). Ultimately, it is argued, organizations must assume some degree of calculated risk to improve.

All organizations inherently assume risk. To take a risk as an organization is to take an action with an uncertain outcome. It has been suggested that the nature of higher education, with missions focused on development of new knowledge, are imbedded in risk (Wessels & Sadler, 2015). While the outcome may be uncertain, an organization is able to gather information that allows it to make an informed, though imperfect decision

regarding the outcome. March (1978) recognized the limits of information and its impact on decision making. The willingness to take risks may also be influenced by individuals as well as group dynamics (Bess and Dee, 2012b).

Inter-Relationship of Organizational Factors

Three key organizational factors emerged from the interviews, and it was apparent that each of those factors had an influence on the others. An illustration of the dynamic is shown in Figure 4. A college with exceptionally strong financials will be able to attract and retain leadership. At the same time, strong, strategic leadership with an ability to implement a long-term vision for the college may be better able to create a solid financial base from which to operate. Colleges in strong financial positions may be less inclined to take risks, while those in weaker financial positions have to take calculated risks to survive. The risks an institution takes change the financial position, and those risks are shaped by the leadership itself. This creates a complex dynamic that is difficult to capture in a quantitative model.

Students

Enrollment

Enrollment is a key indicator of institutional health. It was a theme across all interviews and warrants deeper exploration. The first step in the enrollment process is attracting students to the college. As Participant 5 observed, “a lot of it is first impressions.” Campus visits become a piece of the recruitment process. “if we get students to come to campus, as opposed to just submitting applications without coming to campus, we have a much higher rate of getting them to come to [our college].” Reaching

the correct demographic is important to long-term success. In the view of one senior leader, “the key to success is attracting good students.”

Figure 4. Inter-relationship of Organizational Factors

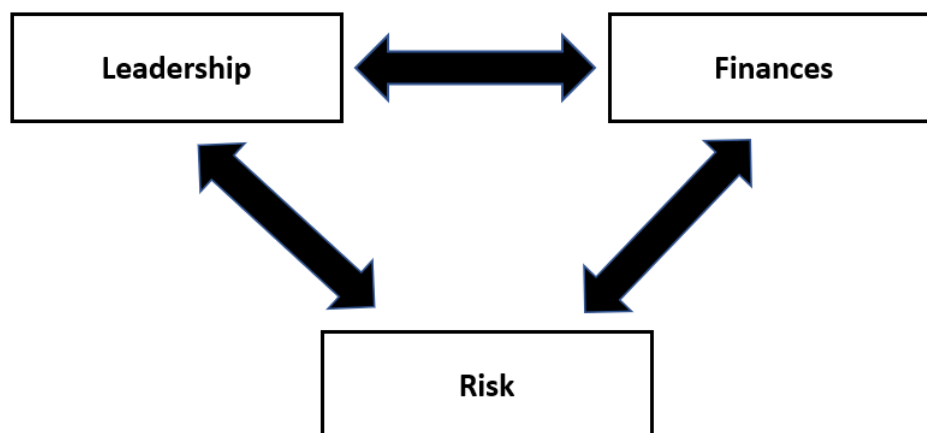


Figure 4. Schematic depicting the inter-relationship of organizational factors. The model illustrates that leadership, finances, and risk assessment and tolerance are inter-related. As an examples, leadership influences risk, but risk tolerance varies by institution and shapes leadership dynamics. Finances impact the types leaders a college is able to hire, and those same leaders influence financial decision making. All of these factors influence outcomes and organizational vulnerability.

There is a clear connection between enrollment, expenses, and scalability. It was observed by Participant 8 that declining enrollment is “not the worst thing in the world if [the institution] can right size the rest of the operations.” In microeconomic terms it may be addressed as economies of scale, where fixed and similar costs are reduced on a per-capita basis with larger enrollment. In the higher education sector this has also been referred to as Baumal’s cost disease (Kamenetz, 2013). Expenses, especially those related to faculty, may only be reduced to a certain level. The nature of higher education requires a minimum of faculty to deliver quality instruction, interaction, and guidance. It was noted by Participant 2 that “you can scale down only so far, then you can’t scale anymore and that’s when you’re vulnerable.”

Enrollment goes beyond the number of students applying, being accepted, enrolling, and being retained by an institution. Participant 3 focuses on “the health of the applications” to ensure they are “reflective of the student body that the institution would like.” Martin and Samels (2009) make the case that the enrollment plan needs to follow the institutional mission. In some instances, it may be better to increase selectivity while intentionally scaling the college downward.

Experiences and Outcomes

As enrollment indicates, the numbers and types of students are of critical importance to colleges and universities. An emergent theme from the interviews was that institutional vulnerability was often framed in student-centric terms. This may be anticipated from those in academic roles. It was, however, a theme that also emerged from interviews with financially focused informants such as external auditors, CFOs, and commercial lenders. The interviews made it clear that the emphasis on students had both a life-cycle and holistic perspective. An institution must be attractive to students in order to obtain applicants, create a positive campus experience to retain students, and understand that graduates who had a positive experience may result in both future admissions and improved financial contributions. This is also holistic, with a recognition that all facets of campus life impact the student experience.

The campus culture and its impact on students was frequently mentioned by the participants. Culture was recognized as important to prospective students. As noted earlier, Participant 5 states that “a lot of it is first impressions.” They expanded on this by explaining that the culture needed to match what the prospective student was looking for. Participant 9 described it as making sure there was a culture on campus where

everyone felt welcome and valued. Filling the needs of students is how Participant 7 viewed a positive campus culture. Participants talked about the ways that small, private colleges filled cultural niches. For participant 8 that culture niche was connected to engagement with faculty and activities that enriched the lives of the students. Participant 7 commented on the single-sex institutions and how they meet the needs of students looking for a particular collegiate experience.

The health and well-being of students was seen as important to creating a positive environment and experience. Participant 6 noted the importance of addressing the mental health needs of the students. The issue of mental health was presented by noting that for their campus the utilization of counseling and reported mental cases were both at all-time highs. Participant 6 also noted that safety is a significant issue for both students and parents. Students want to feel physically and emotionally safe in the campus environment. Parents want to know that their children are safe. The participant stressed this in a climate of increasing violence across campuses.

For some participants, the facilities were also important when discussing student experiences. Participant 6, in particular detailed several core elements of ideal facilities. The quality of the dorms was seen as important by Participant 6. The library was also identified as an important component of the campus experience by this participant. The variety and quality of the food as well as the setting in which it is served was seen as an important aspect of the campus experience by this same participant.

Employment was the most common theme when discussing the post-collegiate experience. Participant 1 emphasized the need to demonstrate a return on investment. This includes both the time and the money spent on the education. Participant 8

expressed the opinion that the goal of education is to provide the resources and tools for an education. They pointed out that this includes the liberal arts and general education courses, which better prepare students for careers. Both Participants 4 and Participant 5 held similar perspectives on the importance of jobs as an outcome, noting the importance of partnering with the broader community to assist students. Participant 4 and Participant 8 felt that the connections with employers would also help a college ensure that the skills students were developing were the skills that would be in demand.

Participant 9 summed up the benefits of a positive student experience and how students become leaders:

Students lead too because they can be great ambassadors to tell people, 'Look, I've been able to get a great education here.' And to the extent they're out there talking about the quality of education they got at a private institution, that's helping to sell it as well."

In contrast, later in the interview, Participant 9 described the impact of a negative student experience:

They may come out and say, 'Hey, this is a hell. I was treated badly and I would never recommend you go back there.' Once that kind of reputation starts to circulate, you're in deep trouble.

The idea that there is a long-term benefit to positive student experiences was noted by several participants. Participant 8 framed it in terms of student engagement leading to alumni engagement. They added that someone who perceived that the education was a valuable and positive experience would most likely be an engaged donor

and recommend the college to others. This was echoed by Participant 5, who stated that alumni engagement helps small college revenues in two ways. They provide donations and they provide new students.

Setting

Six of the participants discussed ways in which the geographic location of the college may impact the success or failure of the institution. This was framed from a variety of perspectives and is less interactive than the other factors. While the environment may influence the organization and the students, the organization and the students are less able to influence the environment in which the college is situated. The environment does still seem to be an important factor in determining vulnerability.

The location of the college may impact the ability to attract and retain faculty, administrators, and staff. For two wage-earner households, a small community with limited opportunities for the second member of the household could limit the ability to attract and retain faculty, administrators, and staff. This was identified as a challenge by Participant 8. Participant 9 felt that a smaller college, especially one in a rural setting, may be challenged to hire the same national caliber leadership talent that larger urban institutions could attract.

The location of the college may impact the ability to attract and retain students. In some cases, the small private colleges are located near other institutions, allowing them to draw on the resources available through proximity to other colleges and universities. A consultant pointed out that one of their clients benefits from access to resources available by being located in a town near three other private and public colleges

and universities. This was contrasted to institutions that were “on islands,” which were an hour or more drive from any other college. Similarly, colleges that were in a remote location were perceived as being more difficult to sell to students.

A small community may lead to challenging dynamics for decision makers, especially when those decisions are difficult. Participant 9 framed it from the perspective of running into the people impacted by their decisions. They compared that to their experience at institutions in larger cities where it was unlikely they would see coworkers beyond campus. As noted previously, seeing a laid-off employee in the grocery store with their family made them more hesitant to make very difficult decisions.

A small, familiar environment may also create challenging dynamics for external financial decisions makers. Participant 1 framed the argument by noting that “nobody wants to foreclose on a church when they will be sitting in the pew on Sunday.” This highlights the reputational risk borne by a financial institution that calls a loan written to a local college. Participant 4 pointed out that many small colleges are economic engines for their regions, so a college closure is likely to have a significant negative impact on its local area in many cases. Similar thoughts regarding the impact of small colleges on the local economy were shared by Participants 3 and 8. If calling a loan led to closure of a college, the loss of jobs, and significant negative local economic impact, the financial institution may experience backlash.

As the competitive landscape becomes more difficult, several participants noted that proximity of colleges to one-another may facilitate cooperative efforts or even mergers and consolidations. Participant 8 talked about the ability to consolidate operations if there were multiple colleges near each other.

The size of the community and relationship with the community were identified as factors that may influence organizational success. There appeared to be an interesting continuum of community size along which some college communities may be too small, too large, or just right. Too small was often described as being removed from any nearby larger communities or institutions, which limited access to other resources. Other participants described small colleges in larger cities lacking local identity and affinity. Participants 1, 7, and 8 described an ideal institution as one with deep local ties, one or two neighboring schools, and a larger town or city nearby. This seems to allow for a separate identity while providing an ability to tap into additional resources.

The community size and location were seen as factors that could also influence the relationship between the college and the community. Participant 7 described experiences with small private colleges in four very distinct communities. Location one, which was also described by Participant 9, had two private colleges, both of which were embraced by the community and could create synergies for each other. In a different setting the small college was in a much larger city that was dominated by a very large private college, leaving the smaller school to operate in relative obscurity. The fourth setting was in a very rural setting with no other schools nearby and a community that did not place as high a value on higher education, giving little local support. The final location was a small town with larger city nearby. There was also a large public university and small private college nearby, both of which were open to working together and creating synergies. In addition, the local community embraced the college. All of these factors were seen as influencing the success of the college.

Impact on Organizational Outcomes

The interviews identified the three broad themes of the organization dynamics, student experience, and the institutional environment as having an impact on organizational outcomes for small private colleges. Among those themes, the organization and the students have a dynamic influence on each other. An illustration of this dynamic is shown in Figure 5. Leadership establishes a vision and implements strategy that affects the experience of the students. The financial condition of the college also impacts the student experience and outcomes. Simultaneously, the students, via enrollment, impact the financial well-being of the college. Their experience, both in college and after, impacts the college through their donations and recruitment of students. The geographic location of the college can influence the ability to attract and retain leadership. The location may also impact student recruitment and experiences. These are just a few examples of the dynamic interactions among the organization, students, and environment that illustrate the complexity of assessing small private college vulnerability.

Data Integration and Conclusions

The study design included a simultaneous bidirectional merging of the quantitative and qualitative research strands (Moseholm & Fetters, 2017). As envisioned, it was an iterative approach with the quantitative data and qualitative findings informing each other. The quantitative strand of the research was statistically significant in its identification of factors that may predict risk for small private colleges. However, those factors were limited in their explanatory power. The study had also anticipated that participants would identify ratios and metrics to add to the quantitative model, improving

its predictive capabilities. The factors of assets and revenue, which were central to the predictive model, were reinforced by participants. The interviews did not include a wealth of specific metrics to expand the model, so no additional ratios were added.

Figure 5. Model of Forces Impacting Organizational Outcomes

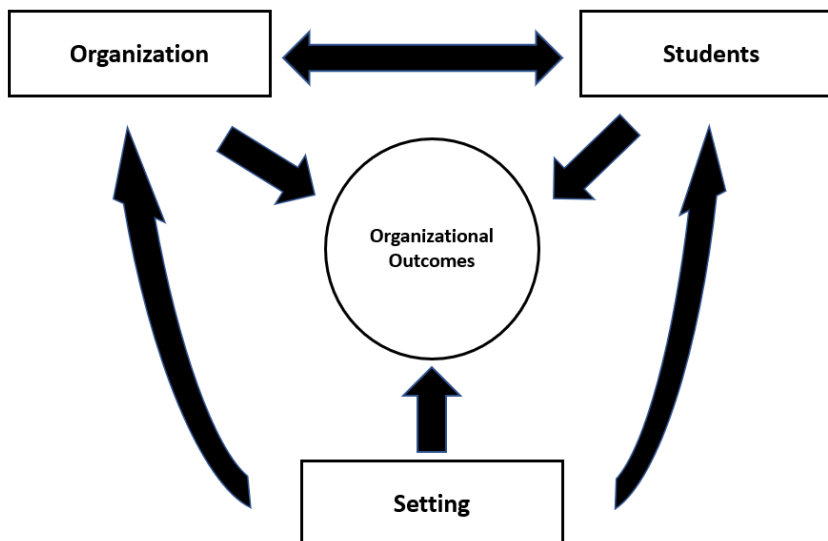


Figure 5. Schematic of Organization-Student-Setting model depicting the inter-relationship between the elements. The model illustrates that organizational factors impact student experiences, and student experiences can impact organizational factors. The setting can influence organizational factors as well as student experiences. All three elements combine to influence organizational outcomes and are indicators of a small private nonprofit college's vulnerability.

As the quantitative and qualitative strands were drawn together, the qualitative strand became explanatory and bidirectional (Moseholm & Fetters, 2017). Given that the quantitative model was limited in its ability to predict vulnerable nonprofit colleges, a better understanding of how leaders in higher education understand organizational vulnerability was needed. That gap was filled through the interviews and qualitative analysis. There appear to be organizational dynamics impacting the performance of a college, especially the inter-relationship of leadership, risk taking, and finances that are

not quantifiable but are part of the assessment of risk. The organizational dynamics are inter-related with student dynamics, especially enrollment and the student experiences and outcomes. Both the organizational dynamics and the student dynamics may be influenced by the organizational setting. Given the challenges of the modeling, it is not possible to answer the third research question, which was to apply the understanding of organizational vulnerability to nonprofit colleges with scores indicating risk.

Chapter 5

Conclusions, Limitations, and Further Research

Based on the quantitative modeling, surplus margin and size were the best predictors of institutional vulnerability. This indicates that it is important for a small nonprofit private college to avoid operating losses. In addition, colleges with larger pools of assets are better able to withstand difficult times than colleges with fewer assets. While the results were statistically significant, the Cox and Snell pseudo R^2 of .075 indicates that the quantitative model leaves unfilled gaps in the understanding of vulnerability for small nonprofit private colleges. There appear to be more complex dynamics at play which impact a college's well-being. The interviews with the participants and the emergent theory help to explain what those dynamics are and how institutional factors may interact to drive institutional success or failure.

The qualitative findings indicate that it is important for small private colleges to understand their organizational dynamics. It is especially important to understand how leadership, finances, and willingness to assume risk impact organizational outcomes and provide an indication of vulnerability. The participants indicated that leadership plays a significant role in organizational success or failure. How leadership is defined and how it is enacted is difficult to fully describe, especially in the field of higher education. Bess and Dee (2012) provide a good description of leadership in a higher education organizational context, recognizing that in higher education the organization is generally loosely coupled with temporary teams focused on activities such as teaching and research. There is also an acknowledgement that an individual leader is unlikely to possess all of the skills required of a leader in higher education, which then requires the sharing of responsibilities (Bess and Dee). Higher education may be unique in the

sharing of responsibilities and the informality with which the leadership roles are carried out.

The leadership role of the president has been addressed in the literature, with Birnbaum (1988) suggesting that many leaders in higher education approach leadership as either transformational or transactional leaders. A transformational leader is more likely to be encouraging followers to help themselves and others work to achieve greater levels of performance in the interest of organizational good (Birnbaum, 1988; Burns, 1978; Hendrickson, Lane, Harris, and Dorman, 2013). Transactional leadership is focused on the exchange value of interactions between leaders and followers (Hendrickson, Lane, Harris, and Dorman, 2013).

The distinction between transformational and transactional leadership may become important for small private colleges facing challenging environments. Organizational change may be necessary for survival. Eckel and Kezar (2012) present one model for conceptualizing change in higher education, with an emphasis on a collaborative environment within a well-understood culture. Within the framework suggested by Eckel and Kezar, leaders must be able to help organization members view the future differently. The ability to envision a different future, see their role in that future, and execute that vision is transformational. Based on these abilities, the transformational leader is viewed as one who could have a significant impact on an institution in crisis (Birnbaum, 1988).

The president, as the senior institutional leader, has significant power to shape the future of a college. It is important to recognize, however, that a president's power is both shaped and limited by their constituencies (Hendrickson, Lane, Harris, and Dorman,

2013; Kerr, 1964). The president must be responsive to the board of trustees. The president must also recognize the needs and wishes of both faculty and students (Hendrickson, Lane, Harris, and Dorman, 2013). Kerr suggested that the president must learn to balance the competing priorities of the multiple constituencies to find the ideal balance of satisfying them while advancing the institutional mission.

In discussions of leadership and boundary spanning, participants highlighted the importance of effective communication. As an organization takes a view to the future and seeks change, effective communication continues to be of critical importance. Buller (2015) emphasizes the importance of asking and listening when he writes about proactive change. Eckel and Kezar (2012) also stress the importance of communication for effective leadership, especially when leading transformational change in higher education. Taking the time to communicate clearly, and listen to others, allows for the development of a common understanding of both the current situation and the path to future success.

Understanding finances is critical. Each institution is unique in its circumstances, but there are core metrics that provide an understanding of organizational health. There are differing ideas regarding the key metrics. Zemsky, Shaman, and Baldrige (2020) break it down to two key areas of market risk and financial risk as measured by enrollment health, retention, market price, and ratio of endowment to expenses. The authors do not suggest an absolute value, but instead look at trends for each institution. Whether an institution uses the work of Zemsky, Shaman, and Baldrige, the more complicated Tahey et al (2010), or any of the many frameworks in between, the key point is that the assessments are tied to the areas that drive that particular college's

organizational success or failure. While developing their metrics, an institution should keep in mind that trends may be more important than a target value. In addition, an institution should be working with business partners to develop benchmark data. This may include external auditors, trade associations, and consortiums.

Assessing and mitigating risk is critical for a small college looking to reduce vulnerability. Kotter (2011) states that poor results are a “blessing and a curse.” Kotter is making the point that poor results allow you to get people’s attention. This is consistent with the observation of Participant 4, who indicated that they were able to implement some changes only after significant budget shortfalls. The curse is that if an institution waits for poor results to make changes, the funding may not be there to pay for the required changes. A college needs to perform continuous environmental analysis and risk assessment in order to take proactive steps to address any identified issues. Kotter talks about creating a sense of urgency, but it is important to make constituents understand the urgency of a situation well in advance of its occurrence.

One of the key findings for small private nonprofit colleges is the importance of the student experience. The participants stressed the importance of the student experience throughout the interviews. This is understood from a life-cycle of the student, meaning it begins with their first introduction as a prospective student through their experience as alumni. A college must create a positive, memorable experience for prospective students, including presentation of the campus. Things such as deferred maintenance or cutting costs on housekeeping can have a detrimental impact on student impressions and admissions. Students attending the college need to have a positive experience, including in the classroom, their housing, the food, the activities, the support

they receive, and the perceived campus climate. Upon graduation, a college must continue to provide both support via career services, for example, and continue to create affinity via alumni programming.

In an increasingly competitive higher education landscape, it is not surprising that leadership and other experts view colleges and universities as service organizations. A growing body of literature addresses colleges and universities as organizations delivering products to expectant customers (Cotton, Dollard, & De Jonge, 2002; Elliott & Healy, 2001; Kakada, Deshpande, & Bisen, 2019; Kotler & Fox, 1995; le Roux & van Rensburg, 2014; Leonard, 2021). Elliott and Healy (2001) suggest that student satisfaction is a short-term attitude that arises from the individual's perception of their educational experience. Specifically, satisfaction is achieved when the perceived performance either meets or exceeds the expectations of the student. Dona-Toledo, Luque-Martinez and Del Barrio-Garcia (2017) take a longer view, explaining that a student's perception of value is an overall evaluation of what they should receive relative to their sacrifices. The sacrifices the students make are both the effort they put forth and the money spent.

Several studies have attempted to identify the facets of higher education most valued by students from a customer experience perspective. The work of Elliott and Healy (2001) focused on identifying what students valued while simultaneously having students rate those elements of the student experience. This allowed the researchers to identify where gaps existed between the experiences students valued and the perceived delivery of those experiences. Among the experiences that students valued were academic advising, instructional effectiveness, safety and security, the course registration process, campus climate, and perceived concern for individuals. The study also indicated

that the experiences valued by prospective students and current students differed. This means that different experiences need to be emphasized to students based on whether the focus is attraction of applications or retention of existing students (Elliott and Healy, 2001).

Other work in the area of student satisfaction has identified broad categories of experiences that students value. Kakada, Deshapande, and Bisen (2019) focused on the categories of academic support, social support, technology support, and service support in their study. They found that each of these were positively related to student satisfaction. Similar work by Leonard (2021) found that administrative staff, support staff, support services, and the campus itself, including the buildings and grounds, have an impact on student satisfaction. The value of administrative support is noted by Paswan (2008) who found that when students' perception of good administration led to brand loyalty to a university.

Students are at college to receive an education and the discussion of satisfaction should be framed from that perspective. There are a variety of models that help conceptualize the way in which the environment impacts the student. The most common ways to frame the student experience are through the lenses of Tinto (1987), Astin (1991), and Berger and Milem (2000). From the perspective of Tinto, over a student's career at a given institution, they will have both academic and social interactions. Those interactions will lead to higher levels of academic and social integration within the college, which should result in stronger bonds to the institution and commitment to complete the degree. Astin's Input-Environment-Output model indicates that both individual attributes of the student and the learning environment impact the outcomes,

including student satisfaction (Mayhew et al 2016). Berger and Milem's (2000) model indicates that the organizational characteristics work in conjunction with the student and peer group characteristics to shape the student experience, which in turn affects student outcomes.

There are a number of studies addressing the creation of a positive learning environment and experience. One common approach is to create a positive first-year experience for students. Miller, Dyer, and Nadler (2002) found that orientation was a critical step for student success, but with limited time there needed to be a focus on what was truly important. In their work, Bowman, Jarratt, Jang, and Bono (2018) argued that a sense of belonging and a sense of well-being were important, especially in the first months of college. It was suggested by Byl, Topping, Struyven, and Engles (2022) that peer learning programs can help new students achieve a sense of belonging.

While the component pieces are important, it is the interaction of organizational and student factors that is critical to understand. The theme emerged from the interviews, but organizational impact on students has been addressed in the literature. It is a given that colleges are organizations and that organizational behavior has an impact on all members, including students (Berger and Milem, 2000; Tinto, 1993). In their work Berger and Milem recognize that an organization does not behave, per se. An organization, including a college, is a socially constructed organism composed of actors whose daily interactions shape the institution.

One of the ways that members of an organization interact is through the symbols and messages they share. Berger and Milem (2000) suggest that students use messages and symbols to develop an internal impression of institutional legitimacy. If messages

are congruent with pre-conceived ideas of what a college should be like, then it may establish legitimacy. A college amid strategic reprioritization with vocally displeased faculty in the classroom could create incongruency for a student, undermining institutional legitimacy. In this way organizational issues impact student experiences, further exacerbating vulnerability for a financially distressed college.

As noted in the literature review, there is a gap in addressing the connection between leadership and organizational vulnerability in higher education, especially for small private nonprofit colleges. The interviews with participants in this study have helped develop a theory that explains how some of the complex dynamics of higher education organizations impact organizational vulnerability and outcomes. The components are consistent with existing ideas in the field, but it brings those ideas together in a cohesive whole and describes how leadership, finances, risk, student experiences, and setting impact one another.

The Organization-Student-Setting model components can be contextualized by the work of Zemsky, Shaman, and Baldrige (2020). The authors draw attention to the distinction between financial risk and market risk. Financial risk is the chance that a college will run out of funds. In contrast, market risk is the odds that a college will run out of students. Finance is a large component of the organization factors in the model, and is reflective of Zemsky, Shaman, and Baldrige's financial risk. The student side of the model largely reflects market risk. Rather than identifying these as two discrete types of risks, however, the Organization-Student-Setting model suggests that there is a complex dynamic at play.

Limitations

There are several limitations to this research. One limitation is the time frame of the quantitative analysis. Although the data covers a number of years and a large number of institutions, the time period of the study was one of relatively strong macro-economic conditions. The study used a 20% decrease in assets as the dependent variable for at-risk. During the study period inflation-adjusted investment returns were averaging approximately 10% per year. Further, the study period terminates just before the financial issues that COVID-19 created for many colleges. The strong macro-economic conditions and missing a crisis such as COVID-19 may have been unusually good financial times for small colleges.

The quantitative modeling is limited by the number of nonprofit colleges identified as at risk. With only 5% of the 3,013 modeled institutions being at risk, it makes modeling challenging. Similar challenges have been cited elsewhere in the literature. For example, Zemsky, Shaman, and Baldrige (2020) included a note on verification of their modeling. The authors pointed out that the limited number of closures made verification of their model difficult. While using at-risk rather than closure as the dependent variable incorporates more colleges, it is still limited.

The number of interviews may limit the qualitative findings. Although the interview themes were achieving saturation, hearing more voices would be beneficial. In addition to being limited in number, the interviews were limited to some extent by geographic perspective. Approximately half of the participants spent their careers in the Mid-Atlantic region, while the remainder have national exposure. The limited regional exposure may create a view of the organization that differs from other regions. As

notions of boundary spanning and organizational isomorphism are considered, limited geographic scope of participants is important to consider.

Further Research

It would be valuable to apply the vulnerability model to colleges that have closed or are at risk using a case study approach. As an example, a researcher could look at Green Mountain in Vermont, St. Paul's in Virginia, Concordia in Alabama, and similar institutions to examine the organizational dynamics, student characteristics, and environmental factors. The study could use interviews, publicly available information, or other sources, to identify whether any of those dynamics seemed to be a factor in the demise of the organizations. A case study may also help identify the point in time at which a specific factor or factors indicated the emergence of vulnerability. A case study may also help develop an understanding of whether one factor is more important than the others. Finally, with a case study other factors may be identified.

For example, Whittier College may provide a case study in vulnerability amid growing signs of distress (Moody, 2023). There are indications that leadership is struggling to maintain a positive relationship with the larger organization. There seems to be a lack of trust within the institution. Finances have been identified as a critical issue, despite the president's assurances that the \$400 million in assets provides the college with a firm financial foundation. While there are challenges with the organizational dynamics, there also may be issues on the student experience side of the college. Whittier is cutting certain athletic programs and, according to an open letter from a former employee, creates an unwelcoming environment for prospective students (Murphy, 2022). Enrollment has decreased 24% in recent years and applications have

decreased 42% during the same time period. Alumni contributions have also decreased significantly. This is all happening while the college is ideally situated geographically, according to the president (Moody, 2023). A deeper analysis of Whittier using the framework proposed in this study may provide additional insight into the model.

Risk assessment, risk mitigation, and risk taking among the leadership of small private colleges may warrant additional study. The ability to adequately assess internal and external environmental risks was identified as a critical factor for the success of small private colleges. Those colleges must also possess an ability to mitigate those risks and take appropriate risks to advance the organization. While all of this seems important, there seems to be room for a greater understanding of how small private college leadership views risk and operates within risk frameworks. A better understanding of risk may improve the ability of senior leaders to guide institutions.

There appear to be gaps in the literature regarding how geographic location shapes institutions. There is an opportunity to better understand how the immediate environment may impact an institution. For example, there needs to be a greater understanding of the how a small college located in a remote location impacts organizational dynamics and student experiences. The research could be designed to identify whether there are differences among the isolated colleges. Continuing to explore the idea of location, it would be of value to understand whether proximity to other colleges and universities has an impact on organizational dynamics and student experiences. Similarly, location research could address whether rural, suburban, and urban settings differ in their impact on organizational dynamics. A better understanding of setting will improve the assessment of vulnerability, especially considering the way in

which the isolated colleges likely serve areas with limited local access to higher education.

Further inquiry into the impact of setting on decision making is warranted. The critical issue raised by participants was the way in which small, intimate settings influence decision making. There is a gap in organizational literature and higher education literature addressing how organization size and setting impact decision making. Interviews with decision makers at various sized colleges and universities in small towns, suburban areas, and urban areas would improve the understanding of how organization size and setting may impact decision making.

Conclusions

This study has implications for research, theory, and practice in the field of higher education. First, this study begins to fill a gap in the literature. There were gaps in quantitative modeling literature addressing at-risk colleges. It would be difficult to argue that the quantitative modeling gap has been eliminated. There were also gaps in the literature relating to organizational dynamics and institutional vulnerability. One of the most important findings from this study is that the participants generally did not define vulnerability in quantitative terms. Therefore quantitative modeling alone is often insufficient for identifying at-risk organizations. To fully understand organizational vulnerability for a small nonprofit private college one must understand organizational dynamics, student experiences, and the organizational setting. The integration of the quantitative and qualitative strands of this study and the resulting Organization-Student-Setting model help make the relationships clear, emphasizing their respective roles in signaling organizational vulnerability.

This study impacts theory by presenting a grounded theory model to help explain the complex dynamics that impact organizational vulnerability for small nonprofit private colleges. The Organization-Student-Setting model provides a framework for understanding institutional vulnerability. There are additional dynamics within the model. An institution will see an inter-play of leadership, finances, and risk impacting organizational dynamics, with each of those factors impacting the other. The Organization-Student-Setting model adds to existing theory by illustrating the interrelationship of the factors and how they shape organizational vulnerability.

As research and theory are addressed, it provides stakeholders in the field of higher education with areas they can focus on to achieve organizational success. Student experiences and outcomes are of critical importance, so that must be an area of emphasis for small nonprofit colleges. As an example, in a time of diminishing funds, an institution can borrow from *blue ocean* strategy, which seeks low-cost differentiation (Chan Kim & Mauborgne, 2011). It is about perceptions of positive student experiences, so focus on providing students what they truly desire and eliminate the costly services they do not want.

While student experiences and outcomes are important, the organizational dynamics are critical to the success of the small nonprofit college. Understanding and managing risk are necessary for leadership. The value of boundary-spanning is seen in a variety of ways. A leader who is adept at boundary-spanning is able to draw multiple constituencies together, which helps when facing challenging times. This is precisely the skill needed for fund-raising as well. Working well with other organizations, whether colleges, trade organizations, accreditors, regulators, or any other stakeholders, provides

a wealth of information regarding how to optimize organizational functions. A less vulnerable institution is one with leaders who are able to work across organizational boundaries.

APPENDICES

Appendix A: Invitation to Participate

Dear Participant,

My name is Daniel Finseth. I am a Ph. D. Candidate in the School of Strategic Leadership studies at James Madison University.

For my dissertation I am exploring the topic of private college and university organizational vulnerability. I would like to interview a purposeful sample of experts to gain insight into organizational sustainability. This expertise includes higher education senior leadership, state and federal policymakers, accreditors, independent auditors, commercial lenders, credit analysts, consultants, and individuals with similar insight into organization dynamics and finances. I am hoping you would be willing to participate in an approximately 45-minute interview. The interview could be either in-person or remote via Zoom.

I have received IRB approval to conduct these interviews (JMU Protocol# 22-341). If you provide initial agreement to participate, I will provide you with detailed information regarding the study, including procedures, risks and benefits, confidentiality, and study contacts. Were you to participate, it would be voluntary and you could opt out of the study at any time prior to incorporation of your responses into the study.

Thank you for taking the time to consider this request.

Sincerely,

Daniel A. Finseth

Appendix B: Participant Letter

Dear Participant,

My name is Daniel Finseth. I am a Ph. D. Candidate in the School of Strategic Leadership studies at James Madison University. I appreciate your agreement to participate in my dissertation research.

For my dissertation I am exploring the topic of private college and university organizational vulnerability. I am interviewing a sample of experts to gain insight into organizational sustainability. This expertise includes higher education senior leadership, state and federal policymakers, accreditors, independent auditors, commercial lenders, credit analysts, consultants, and individuals with similar insight into organization dynamics and finances.

I am hoping you would be willing to participate in an interview which should be approximately 45 minutes in length. The interview will consist of semi-structured questions, allowing the conversation to evolve as we explore the dynamics of nonprofit colleges and universities.

I do not perceive more than minimal risks from your involvement with this study: As examples, you may find some questions address sensitive issues or it may be stressful to think about past experiences. There are potential indirect benefits from this study. It is anticipated that the insights into organizational dynamics and may allow leadership to better understand private college and universities while providing key stakeholders with a greater comprehension of organizational health. You will not receive compensation for participating in this study.

The results of this research will be presented at my dissertation defense, my dissertation, conferences, and in academic journals. While individual responses are obtained and recorded anonymously and kept in the strictest confidence, aggregate data will be presented representing averages or generalizations about the responses as a whole. No identifiable information will be collected from the participant and no identifiable responses will be presented in the final form of this study. All data will be stored in a secure location accessible only by me. I retain the right to use and publish non-identifiable data. Three years after conclusion of the study, all records will be destroyed.

Your participation is entirely voluntary. You are free to choose not to participate. Should you choose to participate, you can withdraw at any time without consequences of any kind. However, once your responses have been submitted and anonymously recorded you will not be able to withdraw from the study.

I have received IRB approval to conduct these interviews (JMU Protocol# 22-341) and would be willing to provide you with additional information regarding the scope of the project.

Thank you for taking the time to consider this request.

Sincerely, Daniel A. Finseth

Appendix C: Informed Consent

Dear Participant:

You are invited to participate in a research study being conducted by Daniel Finseth, a Ph. D. Candidate in the School of Strategic Leadership Studies at James Madison University. The purpose of the study is to gain insight into organizational sustainability of private colleges and universities. This insight will be obtained through interviews with senior leadership of those institutions as well as experts with knowledge of higher education finance and organizational leadership.

Approximately 15 subjects will participate in the study, with each participant's time commitment lasting approximately 45 minutes. If needed, the researcher may provide follow up questions via email.

Your participation in the study will involve being asked several open-ended questions about your perceptions of private colleges and universities. By signing this form, you are allowing the researcher to record the interview and take notes throughout the interview. The recording of the interview will be transcribed.

The research is confidential and no identifying information will be used in the final report. Any interview content in the final report will be assigned a pseudonym. The records relating to the research will include some information about the participants, including connection between the identity of respondents and the data collected. This information will remain confidential by limiting access to the research data and storing it in a secure location. Research records will be maintained for three years.

The researcher, his advisor, and the Institutional Review Board at James Madison University are the only parties that will be allowed to see the data. If results of the study are published or presented, only confidential results will be included.

There are no foreseeable risks to participation in this study. The benefits of taking part in this study are include the potential advancement of theory related to private college organizational sustainability. Your participation may also aid in the development of models to better predict organizational success or failure for private colleges and universities. Participants will be offered a final summary of findings from the study, but may not receive any direct benefit.

Participation in this study is voluntary. You may choose not to participate, and you may withdraw at any time during the study process. You may choose not to answer any questions posed during the interview.

If you have any questions about the study or study procedures you may contact me at:

School for Strategic Leadership Studies
James Madison University
Harrisonburg, VA
Email: finsetda@dukes.jmu.edu
Phone: (540) 830-7577

Or you may contact my advisor, Dr. Benjamin Selznick at:
School for Strategic Leadership Studies
James Madison University

Harrisonburg, VA
Email: selznibs@jmu.edu
Phone: (540) 568-7179

If you have any questions about your rights as a research subject, you may contact the
IRB Administrator at James Madison University:

Dr. Lindsey Harvell-Bowman
Chair, Institutional Review Board
James Madison University
(540) 568-2611
harve2la@jmu.edu

Giving of Consent

I have read this consent form and I understand what is being requested of me as a
participant in this study. I freely consent to participate. I have been given satisfactory
answers to my questions. The investigator provided me with a copy of this form. I
certify that I am at least 18 years of age.

I give consent to be (video/audio) recorded during my interview. _____ (initials)

Name of Participant (Printed)

Name of Participant (Signed)

Date

Appendix D: Semi-structured Interview Topics

I am interested in understanding private college vulnerability. Can you tell me what vulnerability means to you?

- Please tell me about your overall work experience.
- Please tell me about your experience in higher education.
- What is your educational background?
- What is your experience observing higher education?
- What is your experience with private colleges and universities?
- What is your experience interacting with senior leadership at colleges and universities?
 - Allow respondent to define senior leadership
 - For study purposes: Senior leader = Trustee, president, provost, CFO, VP, or dean
 - Within the context of the people you have described, what does it mean to lead? What does effective leadership entail?.
- Have you ever used financial, enrollment, or similar data as a means to evaluate the performance of a private college or university? If so, what metrics do you believe are critical indicators of organizational health?
- Beyond quantitative analysis, have you ever evaluated a private college or university and felt its survival may be in jeopardy? If so, can you describe why you felt that way?
- Do you (board / president / CFO) reflect upon your performance at regular intervals?
- What metrics do you share with (request from) senior leadership of HEIs?
- What other performance information do you share with (request from) HEIs?

Appendix E: Acknowledgement of Personal Bias

It should be acknowledged that all authors have a personal ontology and bias as they conduct their research (Creswell & Creswell, 2016). I have approximately 30 years of senior executive level experience working in accounting and finance across a variety of organization types. This experience has led me to work directly with organization presidents and boards. I have a bias that leadership, good or bad, can have a significant impact on an organization's health. Similarly, I have a belief that organizational culture, and the behaviors it drives, also plays a significant role in the well-being of an organization.

Appendix F: Trussel and Greenlee's Z-Score

Indicator	Calculation	Predictive Score Factor
Constant	<i>Logistic Regression intercept</i>	
Equity ratio	$\frac{\text{Total equity}}{\text{Total revenues}}$	
Revenue concentration	$\sum \left(\frac{\text{Revenue}}{\text{Total revenues}} \right)^2$	
Surplus margin	$\frac{\text{Total revenues} - \text{Total expenses}}{\text{Total revenues}}$	
Size factor	<i>Natural log of total assets</i>	

Note: Organizational predictive risk score will be determined from model

Appendix G: Quantitative Coding Scheme

The proposal identified key financial and enrolment data. The original plan was to use 990 data from Amazon Web Services, ProPublica, or similar sources. While trial SQL queries for the proposal appeared promising, that approach proved to be more challenging with inconsistent data availability. The study ultimately used financial and enrolment data from the Integrated Postsecondary Education Data System (IPEDS). The IPEDS groupings created a broader geographic footprint, which in turn created a larger sample than originally proposed. The scope was expanded from the original New England and Mid-Atlantic regions to nation-wide.

The first step in the process was to download raw data and data dictionaries for the years 2014 through 2020. The filenames, key field, and field names are similar for each year of the study.

1. HD20yy.xls contains information about the participating institutions, where yy represents the last two digits of the data file year.
2. HD20yy_Dict is the data dictionary for the preceding file, providing definitions for each field, where yy represents the last two digits of the data file year.
3. ADM20yy.xls includes information regarding applications, admissions, and enrollment, where yy represents the last two digits of the data file year.
4. ADM20yy_Dict.xls is the data dictionary for the preceding file, providing definitions for each field. In the filename yy represents the last two digits of the data file year.
5. EF20yyD.xls includes retention information, where yy represents the last two digits of the data file year.

6. EF20xxD_Dict.xls is the data dictionary for the preceding file, providing definitions for each field. In the filename yy represents the last two digits of the data file year.
7. Fyyzz_F2.xls includes the financial information for private nonprofit colleges and universities using FASB accounting. The file name uses academic years, so yy is the preceding year and zz is the current year. For example, the file for 2020 would be F1920.xls.
8. Fyyzz_F2_Dict.xls is the data dictionary for the preceding file, providing definitions for each field. The file name uses academic years, so yy is the preceding year and zz is the current year. For example, the file for 2020 would be F1920.xls.

The second step in the data process was to create a table of institutions using the HD20yy.xls file for each of the years 2014 through 2020. This generated a key field (IPEDS organization ID) to be used for subsequent queries. The table was delimited using the following fields:

1. OBERG is the region. The file was originally limited to:
 - a. 1: New England = CT, ME, MA, NH, RI, & VT
 - b. 2: Mideast = DE, DC, MD, NJ, NY, & PA
 - c. 5: Southeast = AL, AR, FL, GA, KY, LA, MS, NC, SC, TN, VA, & WV
2. This limit was subsequently removed in favor of a nation-wide scope.
3. Control is type of organizational control. For IPEDS 2 means private not-for-profit
4. Carnegie is the Carnegie classification for each institution. The file was limited to:

- a. 31 = Baccalaureate College – Liberal Arts
- b. 33 = Baccalaureate College – General
- c. 33 = Baccalaureate / Associates Colleges
- d. 21 = Master's Colleges and Universities I
- e. 22 = Master's Colleges and Universities II

5. INSTSIZE refers to the size of the institution and was limited to the following.
 - a. 1 = < 1,000 students
 - b. 2 = 1,000 – 4,999 students

The delimited data file for institution information included the following fields:

UNITID: Unique institution ID assigned by IPEDS. This serves as the key field for data queries in the study.

INSTNM: This is the name of the institution.

CITY: The city where the institution is located.

STABBR: The state where the institution is located.

OBREG: The geographic region for the institution.

EIN: The federal employer ID number.

SECTOR: The sector for the institution. For the study all institutions are 2=Private not-for-profit, 4-year or above.

CONTROL: 2=Private not-for-profit, which is consistent with SECTOR.

HBCU: 1=Yes, 2=No; Field for potential post-hoc analysis; Not used.

HOSPITAL: 1=Yes, 2=No, -1=Not reported, -2=Not applicable; Field to check for associated hospital on assumption that may materially impact financial dynamics; Not used as it was not relevant.

TRIBAL: 1=Yes, 2=No; Field for potential post-hoc analysis; Not used.

LOCALE: This field provides information about the setting of the institution and will allow for potential post-hoc analysis. 11=City, Large; 12=City, Midsize; 13=City, Small; 21=Suburb, Large; 22=Suburb, Midsize; 23=Suburb, Small; 31=Town, Fringe; 32=Town, Distant; 33=Town, Remote; 41=Rural, Fringe; 42=Rural, Distant; 43=Rural, Remote; -3=Not Available; This was not used.

DEATHYR: Four-digit year of closure; -2=Not applicable.

CLOSEDAT: The date the institution was closed.

CYACTIVE: 1=Yes; 3=No, closed, combined, or out-of-scope.

CARNEGIE: 31=Baccalaureate College – Liberal Arts; 33=Baccalaureate College – General; 33=Baccalaureate / Associates Colleges; 21=Master’s Colleges and Universities; 22 = Master’s Colleges and Universities II

INSTSIZE: 1=< 1,000 students; 2=1,000 – 4,999 students

LONGITUD: Geographic longitude of institution.

LATITUDE: Geographic latitude of institution.

The third step was to use the institutional data file as the key field (UNITID) for pulling the financial data from the Fyyzz_F2.xls files for each of the fiscal years 2014 through 2020. From this the ratios could be calculated for each college for each year. The following summarizes the ratios and the field codes.

Equity ratio:	Revenue (F2B01) / Net Assets (F2B07)
Net Income Ratio:	Revenue (F2B01) / Expenses (F2B02)
Size Factor:	Natural Log of Net Assets (F2A02)
Revenue Concentration:	Tuition (F2D01)
<i>Sum of the squared</i>	Federal Funds (F2D02 + F2D05)
<i>percentages</i>	State Funds (F2D03 + F2D04 + F2D06 + F2D07)
	Private Contributions (F2D08)
	Investment Income (F2D10)
	All Other (F2D09 + F2D11 through F2D15)

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