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### Not so Hidden Secret of Endowment Growth

Tressa Constantineau Ries

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**Not so Hidden Secret of Endowment Growth**

by

Tressa Constantineau Ries

A Dissertation

Submitted to the Graduate Faculty of

Saint Cloud State University

in Partial Fulfillment of the Requirements

for the Degree of

Doctor of Education

in Higher Education Administration

May 2024

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## Abstract

The aim of this study was to determine the optimal spending allocation and investment portfolio strategies that could provide a consistent source of alternative revenue through endowment funds while growing value for private 4-year higher education institutions. By assessing institutional endowment management through alignment of long-term investment strategies and spending allocation plans, institutions can optimize strategic endeavors and minimize risk (Suttles & Snyder, 2023). Many higher education institutions use a simplistic approach to calculating their spending allocation (i.e., moving average) and little attention is given to analyzing various strategies, both spending allocation and investment philosophy, to unleash the true power of the perpetual nature of endowment funds. Through modeling different investment portfolio strategies and spending allocation methodologies for 27 private 4-year higher education institutions in the Higher Education Price Index West North Central region from 2000 to 2022, this quantitative research study determined the optimal endowment pool investment strategy and spending allocation methodology that maintained or increased purchasing power and maximized investment performance overall in the long term. The Friedman's two-way analysis of variance by ranks with planned post hoc comparisons indicated investment strategies (i.e., weighing equity securities and fixed-income compositions) with the more aggressive composition toward equities provided the largest significant growth in the overall endowment value. Further analysis indicated the spending allocation model that provided the most consistent allocation allotment over the period modeled was a moving average that took a longer time horizon into account.

*Keywords:* endowment, spending allocation, investment strategy

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## Chapter 1: Introduction

Although revenue for higher education institutions takes various forms, the major categories are tuition and fees, state and federal appropriations, grants and contracts, investment income, gifts and donations, and sales of services (Goldstein, 2019). According to the 2022–2023 Almanac issue of *The Chronicle of Higher Education*, 4-year private institutions received 33.5% of their revenue from tuition and fees and 0.8% from state appropriations in fiscal year (FY)2020 (The Chronicle of Higher Education, 2022). The 2023–2024 Almanac issue of *The Chronicle of Higher Education* reported that 4-year private institutions received 18.9% of their revenue from tuition and fees and 0.3% from state appropriations in FY2021 (The Chronicle of Higher Education, 2023b).

Comparatively, for FY2020, 4-year public institutions received 21% of their operating revenue from tuition and fees and state appropriations accounted for 17.3% of nonoperating revenues (The Chronicle of Higher Education, 2022). For FY2021, 4-year public institutions received 18.3% of their operating revenue from tuition and fees and state appropriations accounted for 15.1% of nonoperating revenues (The Chronicle of Higher Education, 2023b).

Financing higher education structures differs significantly between 4-year private and public institutions. For 4-year private institutions, tuition and fee revenue typically accounts for their largest revenue source. In fact, “nearly 35% of private institutions could be classified as tuition dependent” (Townesley, 2009, p. 66). Fitch Ratings, a U.S. credit rating agency, issued a deteriorating outlook for U.S. higher education institutions in 2024 based on high labor and wage costs, increased interest rates, and uncertain enrollments (Schwartz, 2023). As a result of these

challenges, Fitch Ratings posited that financial flexibility will be impacted because the expectation for net tuition revenue cannot match rising institutional operating expenses.

Net tuition revenue is composed of gross tuition revenue (i.e., sticker price) minus the financial aid and institutional scholarships awarded to students (Goldstein, 2019). Tuition discounting encompasses “the practice of offering institutional aid to students at levels that exceed their demonstrated need. Essentially, the institution uses a combination of external resources as well as internal resources to attract students who might otherwise not enroll” (Goldstein, 2019, p. 109). In fact, according to the 2022 National Association of College and University Business Officers (NACUBO) Tuition Discounting Study, the average private higher education tuition discount rate reached a record high at an estimated average discount rate of 56.2% for first-time, full-time, first-year students for the 2022–2023 academic year (NACUBO, 2023c). For example, if the tuition sticker price of an institution is \$50,000 per year and a student receives a 56.2% discount funded through institutional financial aid (i.e., scholarships), the institution will collect \$21,900 in net tuition revenue. Understanding the economics of tuition revenue and discounting is paramount considering tuition and fee revenue encompass a large portion of institutional revenue, if not the most significant amount.

The average 2020–2021 college tuition and fees for the West North Central region for private 4-year institutions was \$27,316 (On To College, 2023). The West North Central region, as defined by Commonfund Institute’s Higher Education Price Index (HEPI), comprises the following states: Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, and South Dakota (Commonfund Institute, 2013, 2021, 2022). Private nonprofit 4-year higher education institutions

need to find alternative revenue sources to compensate for fluctuations associated with tuition, fees, and appropriations, and hedge against volatility (Lapovsky, 2007).

The reported investment returns for FY2020 were a mere 10.1% and the reported return for FY2021 was 45.6% for 4-year private nonprofit institutions (The Chronicle of Higher Education, 2022, 2023b). Although investments can be a volatile revenue stream to rely on, “history shows that investment markets have grown over time despite short-term ups and downs” (IAFF Financial Corporation, n.d., para. 2). Investment returns are the product of investment funds and endowment fund earnings.

Endowments are usually depicted as a single fund but are actually an accumulation of many individual funds that have their own guidelines related to usage (American Council on Education [ACE], 2021). In essence, “an endowment is an aggregation of assets invested by a college or university to support its educational and research mission in perpetuity” (ACE, 2021, p. 1). A college or university’s total endowment is a pool of funds that are typically invested in and managed by a trustee. These funds are invested in a variety of investment mechanisms, such as stocks, bonds, real estate, money market funds, and others. The pool is composed of hundreds, even thousands, of individual donations (ACE, 2021; Goldstein, 2019). By building and maintaining endowments, private colleges and universities can use “endowments to supplement other revenues in supporting current expenditures and to ensure their long-term financial security” (Baum & Lee, 2019, p. 5). Endowment funds can help support an institution by providing an alternative revenue source through annual spending allocations or drawdowns. Anderson (2019) stated:

Endowment donors stipulate that the college invest their gifts and spend only the investment income for a particular purpose. . . . Within these constraints, the college chooses how to invest gift funds with other savings in its endowment, and how much to spend each year. (p. 91)

Although donors specify the intention of their endowment gifts, the institution, with a governing board oversight, determines the amount that can be spent. Institutional investment policy statements (IPSs) detail the endowment investment strategy by stating the types of investment mechanisms (e.g., equity securities, fixed income, real estate, cash), the target endowment fund compositions (e.g., 70% in equity securities, 25% in fixed income, 5% cash), the return benchmarks (e.g., Standard & Poor's 500 [S&P 500] Index), and the spending allocation methodology (e.g., 12-quarter moving average; ACE, 2021; Goldstein, 2019).

Commonfund Institute (2019) stated:

Authority over institutional investment pools such as endowments resides with the governing board . . . [and] the responsibility of the investment or finance committee—with the advice and consent of the full board of trustees and with the consultation with the administration or chief executive—to determine the objectives of the endowment and to establish policies that will guide its management. (p. 4)

Endowments serve institutions by providing stability, leveraging other sources of revenue, encouraging innovation and flexibility, increasing institutional independence, minimizing risk associated with declines in enrollment, assisting with unanticipated expenses, and allowing a longer time horizon (ACE, 2021; Baum & Lee, 2019). Maximizing endowment revenue can help higher education institutions weather revenue swings in tuition and fees by

providing a consistent source of revenue through endowment spending to the overall institutional finances (Association of Governing Boards of Universities and Colleges [AGB], 2019b; Belmont & Odisharia, 2014; J. R. Brown et al., 2014; Dixon, 2017; Franz & Kranner, 2019; Grant Thornton, 2022; Guth, 2020; Johnson Bowles, 2022; Lapovsky, 2007; Ngo, 2022; Peretore & Clivaz, 2022a, 2022b; Rogers, 2012; Sedlacek & Jarvis, 2010; Shulman, 1980; Spitz, 1999; Suttles & Snyder, 2023; Swensen, 2009; Wang et al., 2018). Accumulating funds in an endowment offers such benefits as “institutional independence, operational stability, and facilitation of educational excellence” (Franz & Kranner, 2019, p. 1). Endowments can provide stability for higher education institutions to “smooth the impact of financial shocks, buffering operations against disruptive external forces” (Swensen, 2009, p. 22). This stability is especially important when higher education institutions are under attack related to perceptions regarding student debt, college affordability, enrollment declines, educational delivery models, the value of a college degree, labor market challenges, global conflict, pandemic impacts, legislative pressures, investment market downturns, recessive economic factors, and inflationary conditions (Baum & Lee, 2019; Franz & Kranner, 2019; Grant Thornton, 2022; June, 2021; Kelderman, 2023; Kirshstein et al., 1990; NACUBO, 2021, 2022; Schwartz, 2023; Thelin, 2019; Trustees of Dartmouth College, 2021; United States Government Accountability Office, 2010; Vedder, 2004).

The leadership role in these endeavors often falls on the institution’s chief financial officer (CFO), particularly at private higher education institutions, because CFOs “often act as the financial executive for the president and the financial advisor to the governing board” (West, n.d., p. 12). Therefore, the CFO must hone their financial repertoire continually to evolve with



the ever-changing landscape of higher education. The private higher education industry is facing an “era of uncertainty and change” (HelioCampus, 2023a, p. 1) with financial stability being one of the top concerns in a 2020 survey of college and university presidents. To combat financial uncertainty, the CFO must “bring data-informed strategies into the financial-planning process” (HelioCampus, 2023b, p. 2) by collaborating with various subject matter experts, modeling various scenarios, presenting alternatives, and acting as an advisor. In fact, creating multiyear forecasts can help private higher education institutions become more intentional with an eye toward proactive solutions rather than knee-jerk reactions to immediate crises (HelioCampus, 2023b; West, n.d.). The CFO can lead this endeavor.

### **Statement of Problem**

Private 4-year higher education institutions need to find alternative revenue sources to compensate for the instability associated with their major sources of revenue: tuition and fees. Endowment funds “have become an increasingly important source of financing for universities over the past two decades, as the growth rate of the average endowment has far outpaced the growth rate of university expenditures” (J. R. Brown et al., 2014, p. 931). Maximizing and stabilizing endowment revenue helps higher education institutions weather reductions in tuition and fee revenue by providing another reliable source of revenue.

I was interested in studying alternative revenue sources that could grow and provide leveraged financial stability in both the short and long term, given my experiences as a higher education finance, administration, and operations professional working at a smaller private institution with an operational budget of approximately \$32 million heavily dependent on tuition revenue. Although a variety of funding sources besides tuition revenue can supplant university

revenue, I wanted to understand how endowments could be leveraged to help support institutional revenue by modeling different investment strategies and spending allocation methodologies.

For most 4-year private higher education institutions, the optimization of three outcomes associated with endowment strategy helps guide institutional decision making:

[First], a long-term risk-adjusted investment return that is as high as prudently achievable. [Second], a long-term amount spent from the endowment in support of the organization's mission that, consistent with the concept of intergenerational equity, is as high as prudently achievable. [Third], volatility of the amount distributed by the endowment from year to year is as low as prudently achievable. (Jarvis & Clark, 2024, p. 39)

The aim of this study was to provide institutional leaders (i.e., governing boards, presidents, development officers, and CFOs) at private 4-year colleges and universities with a viable strategy to maximize endowment growth and provide guaranteed spending allocation.

### **Description and Scope of Research**

I planned to determine the optimal endowment management strategy that would provide a consistent alternative revenue by modeling endowment spending allocation methods and investment portfolio compositions. In terms of this study, the term *optimal* means the predictable and consistent spending allocation while growing the endowment value over time through an investment strategy that maintains an appropriate level of risk tolerance.

The subjects of my study included private 4-year higher education institutions in the West North Central region as defined by Commonfund Institute's HEPI West North Central

region (i.e., Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, and South Dakota) that responded consistently to the annual National Association of College and University Business Officers and Teachers Insurance and Annuity Association of America (NACUBO-TIAA) Study of Endowments in 2000. Although a variety of spending allocation methods exist, I used the 12-quarter moving average (i.e., 12-quarter), the 20-quarter moving average (i.e., 20-quarter), banded inflation, Hybrid 70/30, and Hybrid 80/20. The investment composition strategy between equity and fixed income included 70/30, 80/20, and 90/10.

Endowment data were obtained from (a) the annual NACUBO-TIAA Study of Endowments; (b) the institutionally submitted Internal Revenue Service (IRS) Form 990, Schedule D, Part V; (c) the Integrated Postsecondary Education Data System (IPEDS); (d) institutional annual financial reports; and (e) institutional websites. I employed the HEPI West North Central region for inflationary data. For historical market returns, the S&P 500 annual return was used for equity returns and the Bloomberg Barclays's Aggregate Bond Index was used for fixed-income returns (New York University, 2023; P. Hager, personal communication, June 1, 2023). Using the previously described information, I built models in Microsoft Excel to calculate the corresponding spending allocations and endowment values for each institution. I assessed the models by monetary value and variability for each institution, as well as on a consolidated basis.

### **Research Questions**

This study sought to fill the gap in literature related to alternative revenue sources for private 4-year institutions by analyzing strategic use of institutional endowments. The following questions guided this study:

1. Which investment asset allocation philosophy and resulting investment performance provided the largest long-term endowment growth (i.e., largest endowment value) over the period of study?
2. Which spending allocation strategy provided a consistent and reliable source of revenue on an annual basis over the period of study?

### **Research Hypotheses**

For the first research question related to investment asset allocation philosophy, this study compared three investment strategies (i.e., 70% equity securities and 30% fixed income [70/30], 80/20, and 90/10). The null hypothesis was there is no difference in endowment earnings among the 70/30, 80/20, and 90/10 investment strategies:

$$H_0: I_{70/30} = I_{80/20} = I_{90/10}$$

*I<sub>70/30</sub> = 70% equity and 30% fixed-income investment strategy*

*I<sub>80/20</sub> = 80% equity and 20% fixed-income investment strategy*

*I<sub>90/10</sub> = 90% equity and 10% fixed-income investment strategy*

The research hypothesis for this study was that there is a difference among the three investment allocation strategies at the significance level of .025 and was represented by the following equation:

$$H_1: I_{70/30} \neq I_{80/20} \neq I_{90/10}$$

The second research question related to spending allocation strategies compared five spending calculations (i.e., 12-quarter moving average, 20-quarter moving average, banded inflation, Hybrid 70/30 [where 70% is based on inflation and 30% based on endowment value], and Hybrid 80/20). The null hypothesis was that there is no difference in spending allocation

amount among the 12-quarter moving average, 20-quarter moving average, banded inflation, Hybrid 70/30, and Hybrid 80/20 and is depicted by the following:

$$H_0: S_{12Q} = S_{20Q} = S_{BI} = S_{H70/30} = S_{H80/20}$$

*S<sub>12Q</sub> = 12-quarter moving average spending allocation methodology*

*S<sub>20Q</sub> = 20-quarter moving average spending allocation methodology*

*S<sub>BI</sub> = banded inflation spending allocation methodology*

*S<sub>H70/30</sub> = Hybrid 70/30 spending allocation methodology*

*S<sub>H80/20</sub> = Hybrid 80/20 spending allocation methodology*

The research hypothesis for this study was that there is a difference among the five spending allocation methodologies at the significance level of .025, represented by the following equation:

$$H_1: S_{12Q} \neq S_{20Q} \neq S_{BI} \neq S_{H70/30} \neq S_{H80/20}$$

### **Purpose of This Study**

The purpose of this study was to determine the optimal spending allocation and investment portfolio strategies that provide a consistent source of alternative revenue through endowment funds while growing the endowment value for private 4-year higher education institutions. Higher education leadership take many considerations into account when assessing the appropriate endowment strategy. Institutional leadership must determine their risk tolerance, the overall purpose of the endowment, funding priorities, and legal parameters.

Institutional investment portfolio statements and policies guide institutional strategy as part of organizational governance and practice. According to Jarvis (2020), “The policies, formulas and methodologies that permeate the endowment spending decision bear on issues that are highly strategic for the institution, its stakeholders (including beneficiaries, donors and the

broader community) and its long-term stability” (p. 1). Overall, endowment funds are designed to provide intergenerational wealth in perpetuity while maintaining purchasing power, following donor guidelines, and operating support (ACE, 2021; Jarvis, 2020; Swensen, 2009). Higher education institutions have the ability to change their spending allocation method and investment composition. According to Jarvis (2020):

Spending stands at the intersection between investment policy and institutional sustainability and, to a large measure, governs the success of both. . . . In the volatile investment environments that prevailed in the global financial crisis of 2008–09, and the COVID-19 pandemic of 2020, prudent spending practices had the potential to make the difference between continued mission support and required retrenchment, as some institutions found that overspending in the recession made it very difficult to recoup endowment value in the low-return investment regime that followed. For this reason, spending policy is strategic rather than tactical. (p. 11)

Investment philosophy defines how an institution constructs its investment strategy and objectives. Although higher education institutions may have differing investment philosophies, “creating a diversified portfolio with a range of equity-oriented asset classes that respond to drivers of returns in fundamentally different fashion provides important underpinnings to the investment process” (Swenson, 2009, p. 97). In addition, “as reliance on the endowment increases, the institution’s ability to tolerate volatility in the distribution may decrease requiring consideration to one of the moving-average, inflation-based or hybrid methods” (Jarvis, 2020, p. 8).

### **Assumptions of the Study**

In performing this study, I made a variety of assumptions related to the sample selection being representative of the population, inflation factor, investment performance and composition, and the overall endowment value. My sample selection included 4-year private institutions that submitted endowment information to the annual NACUBO-TIAA Study of Endowments in 2000. Historical endowment values for this study were obtained from the NACUBO-TIAA Study of Endowments. Additionally, I used the IRS Form 990, Schedule D, Section V filed with the IRS from 2008 to 2022 for endowment values, investment returns, contributions, spending, and management fees. To account for inflationary pressures, I selected the HEPI as a representative factor of the private 4-year higher education institutions located in the West North Central region. Equity investment performances were evaluated against historical annual S&P 500 returns and fixed-income market returns were evaluated against annual Bloomberg Barclays's Aggregate Bond Index. I assumed both of these annual benchmarks provided an accurate rate of investment performance for all studied institutions.

### **Organization of the Dissertation**

In Chapter 2, I examine the literature associated with higher education endowment funds, including terminology comprising definitions and types of endowments, endowment management, institutional leadership and endowments, the history of endowments, endowment strategy consisting of endowment income and spending policies, areas of endowment support, the impact of inflation on endowments, and U.S. market conditions. In Chapter 3, I present an overview of the research methodology by providing a description of the quantitative research design followed by selected institutions, instrumentation, analysis, and data quality. Chapter 4

presents the results of the analysis. Chapter 5 includes a discussion of the research, the findings, implications (i.e., both in practice and research), conclusions, and the limitations of the study.



## **Chapter 2: Literature Review**

The review of literature provides an overview of endowments in higher education. Specific areas that I review in this chapter include literature on endowment terminology comprising definitions and types of endowments, endowment management, institutional leadership and endowments, the history of endowments, endowment strategy consisting of endowment income and spending policies, areas of endowment support, impact of inflation on endowments, and U.S. market conditions. The literature review process incorporated various sources, such as scholarly peer-reviewed journals, periodicals, books, dissertations, institutional policies, presentations, personal communications, professional organization sources, survey data, tax returns, and other published sources.

### **Endowments Defined**

Endowments “originated to establish a pact between generations: a promise from past and current donors . . . that the institution will sustain certain commitments over time” (American Council on Education [ACE], 2021, p. 4). According to Campbell (2011), “An endowment is a promise of vigorous immortality . . . The promise to donors that the money given to the endowment will, in a certain sense, live forever, so that the donor’s impact can be sustained into the indefinite future” (p. 32). Endowments are usually depicted as a single fund but are actually an accumulation of many individual funds that have their own guidelines related to usage (ACE, 2021). In essence, “an endowment is an aggregation of assets invested by a college or university to support its educational and research mission in perpetuity” (ACE, 2021, p. 1). A college or university’s total endowment is a pool of funds that are typically invested in and managed by a trustee. These funds are invested in a variety of investment mechanisms such as stocks, bonds,

real estate, money market funds, and others. The pool is composed of hundreds, even thousands, of individual donations (ACE, 2021; Goldstein, 2019). Above all, the endowment fund investment strategy must incorporate a diverse set of financial instruments “to protect the endowment against unforeseen changes in any one market, and to alleviate the impact of poor investment decisions” (Shulman, 1980, p. 3). The sources of endowment funds are contributions, investment fund returns/earnings, and operating budget surpluses (Lapovsky, 2007). Endowment growth is the result of endowment funds sources (e.g., market returns, contributions) reduced by the funds withdrawn to support the endowment purposes and administrative fees.

An individual endowment fund has specific guidelines regarding how the corpus, or the original gift and potentially additional base gifts, are to be invested in perpetuity (Goldstein, 2019; Thelin, 2013). Investment income generated by the fund is available based on donor stipulations or institutional requirements. Basically, the corpus is invested and a portion of the fund’s value (i.e., investment income) is made available each year to support the donor’s defined purpose. Any excess earnings remain in the endowment fund (Lapovsky, 2007). A donor stipulates the purpose of the funds, which may include such areas as scholarships, endowed chairs, research, capital projects, physical assets (i.e., maintenance and upgrades), university operations, athletics (i.e., scholarships, equipment, and coach salaries), tuition gap, grants, and innovative programs and practices (ACE, 2021; Chambers, 2015; Drezner, 2011; Shulman, 1980; Worth, 1993). Funds that do not have a designated purpose are considered unrestricted and the institution may choose how the funds are to be spent (Goldstein, 2019). Only a small percentage of gifts are considered unrestricted by definition, but “many restricted gifts are considered ‘effectively unrestricted’ in that they are restricted to activities that the institutions

would perform anyway” (Cheslock & Gianneschi, 2008, p. 210). Therefore, endowed gifts can help support higher education institutions in many ways.

There are four types of endowments: unrestricted, restricted, term, and quasi. The most straightforward type of endowment gift is an unrestricted endowment whereby the donor does not put any stipulations on the use of funds (Goldstein, 2019). In essence, the donor hands over full control to the university/foundation, allowing the institution to use, distribute, and invest the funds as necessary (Goldstein, 2019; Ngo, 2022; United States Government Accountability Office, 2010). A restricted endowment is a gift in which the donor stipulates how the gift may be used. Typically, the principal amount, or the corpus, must remain intact. Ngo (2022) stated, “This stipulation means the university must invest the endowed funds, since only the *returns* from these ventures may be used according to the donor’s wishes. This ensures the endowment remains perpetually intact” (para. 7). A term endowment is a combination of an unrestricted and restricted endowment where the donor restricts use of the principal for a specified period of time, but the returns may be used (Goldstein, 2019; Ngo, 2022). When the time restriction is met, both the principal and earnings are available (Goldstein, 2019; Ngo, 2022). Although higher education institutions may have different definitions of quasiendowment funds, one of the most common are board-designated endowments or funds functioning as an endowment. They are “resources set aside by an institution’s governing board and combined with [other] . . . endowments for investment purposes with only the investment income available for use” (Goldstein, 2019, p. 363). The governing board determines when and how the funds may be used and typically support long-term obligations such as scholarships, professorships, deferred maintenance, strategic initiatives, capital campaign support, and long-term debt payments (ACE, 2021;

Association of Governing Boards of Universities and Colleges [AGB], 2019b; J. R. Brown et al., 2014; Rogers, 2012).

### **Endowment Management**

In many public higher education institutions, endowments are managed outside of the university structure through a foundation. The foundation typically engages in fundraising activities on behalf of the public institution and manages the donations received within the endowment (Goldstein, 2019). The Council for Advancement and Support of Education (n.d.) stated, “College and university foundations are separate 501(c)3 charitable organizations that exist solely to support students, research, and learning at a college, university, university system, or college unit” (para. 1). Most private nonprofit higher education institutions do not have separate college and university foundations performing fundraising; instead, the activity is part of the internal development or advancement office. Despite the difference in the formal organizational structure of the fundraising activities, the overarching goal is to support the institution “while honoring donor intent” (Council for Advancement and Support of Education, n.d., para. 2).

There is an increasing prevalence of professional development and advancement offices in higher education institutions. These offices increase institutional revenue and support the success of higher education institutions. Development departments provide a structure and planning for an entity’s fundraising process (Herrmann & Herrmann, 1996; Shaker & Nathan, 2017). A primary component of this structure is relationship building between the potential donor and the higher education institution through professional fundraisers, which can take years to come to fruition. According to Herrmann and Herrmann (1996):

The development officer properly involves the potential donor in a way that a proper relationship between the donor and the university is facilitated by the fund raising professional. Consequently, the gift will come from a person who has now become a member of the university family as an expression of love for this new family. (p. 6)

Private donations can provide transformational change to individual higher education institutions.

The development office acts as a matchmaker for aligning university needs and institutional priorities with donor wishes by cultivating relationships. As donors provide financial gifts to a foundation, the foundation invests these gifts into an endowment pool to earn income, providing additional resources to a higher education institution. Because this funding source has the potential to grow over time, endowments can support higher education institutions as an alternative revenue stream. In fact, “the diversity in this source of voluntary support . . . enables United States’ higher education institutions to grow at a phenomenal rate” (Lee, 2008, p. 137). At the same time, it is important to remember that “even the largest endowments can only supplement—not replace—annual funding. . . . Most institutions can cover only very modest fractions of their annual budgets with earnings from their endowments” (ACE, 2021, p. 3). Using endowments and their associated spending policies has the potential to provide a smoothing effect for institutional revenue, if managed appropriately.

### **Institutional Leadership and Endowments**

#### **Governing Board and Investment Committee**

A higher education institution’s governing board has a variety of roles and responsibilities, with fiscal stewardship being arguably one of the most important. The governing

board “is responsible for ensuring the institution’s fiscal integrity, preserving and protecting its assets for posterity, and engaging directly in fundraising and philanthropy” (AGB, 2019a, p. 37). Essentially, the board is considered the ultimate fiduciary of the institution and is responsible for overall decision making of the institution (Boardable, n.d.). Governing boards’ activities “should be grounded in the work of its committees. Working in tandem, committees enhance the purpose and advance the productivity of the full board” (Yoder, 2011, p. 8). Committees are responsible for recommending decisions to the full board. A focus of investment committees is to ensure “the financial resources available to colleges and universities—and thus their quality and competitive position—are directly affected by the success or failure of endowment management” (Yoder, 2011, p. 15). Therefore, investment committees must establish the overarching policy associated with endowment management and delegating day-to-day operations to the administration—the president, chief financial officer (CFO), chief investment officer, and development officer.

### **Investment Policy Statement**

The purpose of an investment policy statement (IPS) is to define clearly the investment policies, the objectives of endowment assets, and the responsibilities associated with endowment governance. Typically, an IPS is specific to each higher education institution due to the varying needs of the institution, preferences, and risk tolerances. Commonfund Institute (2019) stated:

The IPS should be specific, embodying in concrete terms the best thinking of the board of trustees about the investment pool, its goals and its purposes; but it also needs to be sufficiently flexible to guide the board through environments that may be very different from those prevailing at the time of its adoption. (p. 6)

An IPS has five key components, including the (a) endowment fund's return objectives, (b) spending, (c) asset allocation or investment strategy, (d) risk management, and (e) liquidity. IPSs are individualistic and unique to each institution. A review of investment committee documentation, including IPSs, showed both similarities and distinct differences.

### *Macalester College*

Macalester College's endowment purpose statement specified that endowment contributes to the institution "by providing enduring support for the College" (Macalester College, n.d.-b, para. 1). Further, Macalester College (n.d.-b) provided the following definition of support:

The substantial and reliable flow of funds to the operating budget helps ensure the quality of the College's operations, both currently and for the future. Spending from the endowment reduces the College's vulnerability to fluctuations in other revenue sources, thereby strengthening the College's ability to plan its future course with confidence and consistency. (para. 1)

This purpose statement guided the objectives of their endowment strategy, which included growing the endowment, taking into account inflationary factors (e.g., maintaining purchasing power), diversifying investment strategies, and ensuring sufficient liquidity. Macalester College outlined the endowment draw, or spending allocation calculation, which takes both prior year's spending amount and a market value computation with a floor and ceiling amount (Macalester College, n.d.-a).

### ***St. Olaf College***

The primary goal of St. Olaf College's (2023) investment policy and objectives for endowment assets was to "preserve the purchasing power of the Endowment by achieving long-term returns that meet or exceed the sum of expenditures" (para. 5) associated with spending policy allocations, inflation, and investment fees. To fulfill these investment objectives, St. Olaf College detailed the investment time horizon as the long-term perpetual investment pool, return objective to ensure capital availability for both operations and strategic endeavors, risk tolerance over a full market cycle to match the college's defined benchmarks, and liquidity standards of investment categories. St. Olaf College's annual allowable spending allocation was based on historical market earnings for 16 quarters.

### **Background of Endowments**

The history of endowment funds in higher education dates back as far as the 15th century; however, the practice was innovated in the United States in the 18th century. The importance of endowments continues to grow as other revenue sources dwindle.

### **Early Endowment History**

The endowment concept began in England during the 15th and 16th centuries and grew through U.S. ingenuity over the past 300 years to enhance the support of higher education (ACE, 2021). John Harvard supported Harvard College during its infancy through a generous donation of a library collection and half of his estate (Chambers, 2015; Harvard University, n.d.). The Collegiate School of Connecticut changed its name to Yale College in 1718 due to a donation from "the proceeds from the sale of nine bales of goods together with 417 books and a portrait of King George I" (Yale University, n.d., para. 1). According to the 2021–2022 Almanac issue of



*The Chronicle of Higher Education*, Harvard University and Yale University were ranked first and third, respectively, as having the largest endowment value among U.S. higher education institutions, which was consistent with the 2022–2023 Almanac issue of *The Chronicle of Higher Education* (The Chronicle of Higher Education, 2021, 2023a).

Andrew Carnegie, a U.S. steel industry tycoon, influenced the giving culture in the United States through his philosophy, documented in his 1889 article entitled *The Gospel of Wealth* (Chambers, 2015). In *The Gospel of Wealth*, Carnegie outlined the responsibility of the “ultra-rich class of Americans to spread their wealth around the country through philanthropy” (Chambers, 2015, p. 2). This philosophy deviated from the European attitude of passing wealth to future generations of the family. Carnegie believed “the man who dies thus rich dies disgraced” (Carnegie, 1889/2017, p. 15) and endowed many entities, including a library, peace initiative, museum, and university. Carnegie started a tradition of philanthropy in higher education that has inspired others to do the same (Chambers, 2015).

### **Contemporary Endowment Period**

Although endowment values have vacillated over the years, ebbing and flowing based on historical and economic circumstances, philanthropy “has defined and influenced American higher education since the founding of Harvard” (Drezner, 2011, p. 26). Endowment gifts to institutions help support and may even ward off the closing of a struggling college or university. For example, Sweet Briar College, a 4-year women’s college in Virginia, faced significant financial challenges in 2015. The situation prompted the administration and the board to attempt to close the college, despite an endowment of \$69 million (Poleski, 2020). Sweet Briar women organized quickly, building a legal case to keep the college open and securing significant

donations and pledges. The Saving Sweet Briar movement was successful, and the college was able to “reinvent itself and innovate in a way where others had not” (Poleski, 2020, para. 5) by changing leadership and creating an innovative academic vision. In May 2021, Sweet Briar College graduated 59 students who entered after the college revision and had a total enrollment of around 400 students. Annual gifts exceeded \$8 million, which was significant considering the size of the college (J. Sauer, personal communication, October 20, 2021).

The National Association of College and University Business Officers and Teachers Insurance and Annuity Association of America (NACUBO-TIAA) partner annually to perform a study of endowments for higher education. The 2021 NACUBO-TIAA Study of Endowments, representing the time period of July 1, 2020, to June 30, 2021, accumulated 720 responses from colleges, universities, and education-related foundations totaling an asset value of \$821 billion (NACUBO-TIAA, 2022c). Of the 720 institutions reporting in 2021, 142 had an endowment value of over \$1 billion and the average size of an endowment was \$1.1 billion, up from the average of \$905 million for 111 institutions with 705 respondents in 2020 (NACUBO, 2021, 2022; NACUBO-TIAA, 2021, 2022a, 2022b, 2022c).

The response rate for the 2022 NACUBO-TIAA Study of Endowments, representing the time period of July 1, 2021, to June 30, 2022, dropped significantly from the previous period by nearly 6% to 678 responses (NACUBO-TIAA, 2023a). In addition, the overall asset value dropped \$14 billion to \$807 billion. The average size of the reported endowment value was \$1.2 billion, with the overall median value of \$203.4 million. Interestingly, 84%, or 136 institutions, of the total market value was held by endowments with more than \$1 billion in assets (NACUBO, 2023b; NACUBO-TIAA, 2022a, 2022b, 2023a, 2023b, 2023c).

Endowment support to higher education institutions remained consistent between fiscal year (FY)2020 and FY2021. In FY2021, 47% of endowment spending supported student financial aid and 15% funded academic programs and research (NACUBO-TIAA, 2022c). In FY2020, 48% of endowment spending supported student financial aid and 17% funded academic programs (June, 2021). In addition, the average spending rate by endowments was consistent between FY2020 and FY2021 at 4.5%. However, “endowment revenue was likely a larger part of the FY2021 operating budgets because tuition and auxiliary revenue at many institutions were down as a result of the pandemic” (NACUBO-TIAA, 2022c, p. 4). A point of difference between FY2020 and FY2021 was that approximately 20% of the responding institutions made special appropriations in FY2021 to supplant their operating budgets due to the COVID-19 global pandemic (NACUBO-TIAA, 2022c).

In addition to the ongoing COVID-19 global pandemic, FY2022 was marred by challenging market returns and inflationary factors, providing a negative impact on college and university endowments, which was in direct contrast to the high rates of return experienced in FY2021 (NACUBO-TIAA, 2023a). In fact, endowment portfolios generated returns of -8% in FY2022 compared to an average of 30.6% in FY2021 (NACUBO-TIAA, 2022c, 2023a). According to the 2022 NACUBO-TIAA Study of Endowments, the average effective annual spending rate dropped to 4.17% in FY2022 compared to 4.79% in FY2021. Despite the decreased effective annual spending rate, the total endowment withdrawals increased to \$25.9 billion in FY2022 compared to \$23.9 billion in FY2021. Consistent with FY2020 and FY2021, FY2022 distributions for student financial aid were the largest category of endowment spending at 46% (NACUBO-TIAA, 2023a).

According to ACE (2021), the median endowment for private 4-year institutions was approximately \$37.1 million in 2018, which supported approximately \$1.5 million to \$1.9 million of annual expenditures or about 5.1% to 6.4% of an institution's median total expenditures of \$29.2 million. Although endowments help support higher education endeavors, the actual amount is relatively miniscule. Interestingly, according to the 2023 NACUBO-Commonfund Study of Endowments, "endowments fund an average of 10.9 percent of NCSE participants' annual operating budgets in FY23" (NACUBO, 2024, para. 14). Endowment funds have the potential to provide a substantial alternative revenue stream for higher education institutions.

### **Endowment Strategy**

#### **Endowment Income and Spending Rate**

Endowment income is the revenue earned by investing the gift principal (Goldstein, 2019). Earnings can take the form of dividends, interest, rents, royalties, unrealized appreciation, and realized earnings from the sale of investments (e.g., stocks, bonds). Usually, only a portion of the earnings are available for spending during a given year. The goal in determining the spending rate is to provide a predictable and stable allocation of resources to support the donor's gift guidelines in perpetuity and to prevent diminishing the principal of the original gift, allowing for the growth of the endowment through continued reinvestment of the annual investment income (K. Brown & Tiu, 2013; Campbell, 2011; Drezner, 2011; Goldstein, 2019; Rogers, 2012; Spitz, 1999). The endowment portfolio investment strategy, as defined in the institutional IPS and the spending policy, guides the funds available from the endowment.

## **Investment Strategy**

According to David Swensen, Yale University's long-time chief investment officer, the first step in structuring an investment portfolio is to understand why the endowment exists. Swensen (2009) stated, "Endowments provide the means to produce a margin of excellence. Better endowed institutions enjoy an incremental source of funds available for deployment to create a superior educational environment" (pp. 22–23). Understanding the reasons for the endowment's existence and aligning an investment strategy to the overall investment policy and process is paramount. Essentially, "viewing the endowment as a perpetual resource for the mission of the institution" (Sedlacek & Jarvis, 2010, p. 2) is important. A central role for any endowment is providing a consistent and reliable source of revenue in perpetuity (AGB, 2019b; Campbell, 2011; Sedlacek & Jarvis, 2010).

Maximization of endowment value is accomplished over time by maintaining the fund's purchasing power through "long-term growth that would exceed the total of spending and costs plus inflation while keeping volatility within acceptable limits" (Sedlacek & Jarvis, 2010, p. 2). Preserving the real value of the original gift, or corpus, and the annual spending allocation is the basis for the prudent level of annual spending (Spitz, 1999). The Uniform Prudent Management of Institutional Funds Act (UPMIFA), enacted in 2006, gives guidance to charitable organizations related to the management and investment of funds by clarifying factors for prudent investment decisions (ACE, 2021; AGB, 2019b; Anderson, 2019; J. R. Brown et al., 2014; Sedlacek & Jarvis, 2010; Spitz, 1999). Specifically related to investments, UPMIFA requires the charity and investment managers to do the following:

Act in good faith, with the care of an ordinary prudent person would exercise . . . make decisions about each asset in context of the portfolio of investments, as part of an overall investment strategy . . . diversify investments . . . dispose of unsuitable assets, and . . . development an investment strategy appropriate for the fund and the charity. (National Conference of Commissioners on Uniform State Laws, 2006, p. 2)

The tenets of UPMIFA guide institutional investment decisions, but do not provide specifics such as how the funds should be invested and in what proportions. Discretion is given to review the portfolio in its entirety and “as part of an overall investment strategy having risk and return objectives reasonably suited to the fund and the institution” (National Conference of Commissioners on Uniform State Laws, 2006, p. 12).

One of the institutional trustee’s roles is to oversee the management and allocation of the institution’s assets. Trustees are legally obligated to follow UPMIFA and be prudent investment managers while making “every effort to achieve as substantial return as prudence will allow” (ACE, 2021, p. 6). Investment committees should review their policies on a periodic basis to ensure compliance and desired performance (Dixon, 2017). The overall endowment asset strategy should consider the ability to fund future obligations while managing risks and balancing expected returns and inflation (Belmont & Odisharia, 2014; Garland, 2019, Lapovsky, 2007; Spitz, 1999). An overall investment return to sustain consistent purchasing power is at least 8% per year, which helps with inflationary factors, covers management and operating fees, and allows for a 5% spending rate (ACE, 2021). Diversification of the endowment asset strategy, or asset mix, can assist with providing a more stable expected rate of return on the investment

portfolio. According to Lapovsky (2007), “more than 90 percent of the variability of return to [the] endowment can be attributed to asset allocation” (p. 102).

The composition of the endowment assets investments has evolved over time. Prior to the 20th century, educational institutions invested heavily in real estate (ACE, 2000, 2014, 2021). Endowment investments have become increasingly diversified over the last half century to include a variety of sources, such as commodities, gas and natural resources, private equities, publicly traded equities or U.S. stocks and international stocks, bonds, hedge funds, fixed income, real estate, and venture capital (ACE, 2000, 2014, 2021; Belmont & Odisharia, 2014; J. R. Brown et al., 2014; Campbell, 2011; Lapovsky, 2007; Moody, 2022; Peretore & Clivaz, 2022b; Spitz, 1999; Swensen, 2009). Creating an asset mix that takes potential market volatility into account can help with stability in returns. According to Campbell (2011), an important strategy is to maximize the reward-to-risk ratio by “find[ing] more asset classes that carry a risk premium but are not perfectly correlated with one another” (p. 34). For example, the earning power of nontraditional investments, such as real estate, private equity, and foreign securities, tends to have an inverse relationship with earnings from traditional investments (Spitz, 1999; Swensen, 2009). About 87% of public and nonprofit institutions’ endowment assets were composed of traditional stocks, bonds, and cash investments in 2002, which fell to 72% by 2020 (ACE, 2021). In the 2021 NACUBO-TIAA Study of Endowments, the reported asset allocations for all institutions were 32.5% in public U.S. equities, public non-U.S. equities, and public global equities (NACUBO-TIAA, 2022c).

On average, during FY2021, endowments earned 30.6% overall compared to the average earnings in FY2020 of 1.8% (NACUBO-TIAA, 2022c). In FY2022, many institutions

experienced extensive endowment losses with the annualized return of -8% (NACUBO-TIAA, 2023a). Washington University in St. Louis reported a loss of 10.6% in FY2022 despite achieving a positive return of 65% in FY2021 (Moody, 2022). This example shows how endowment earnings can vacillate extensively from year to year. Linking investment policies with spending policies is essential to ensure the allocation of endowment resources.

### **Spending Policy**

Spending policies, adopted by most higher education governing boards, are devised to provide a consistent spending allocation while maintaining intergenerational equity (ACE, 2000, 2014, 2021; AGB, 2019b; Belmont & Odisharia, 2014; Birkeland et al., 2013; Daniels, 2022; Dixon, 2017; Garland, 2019; Lapovsky, 2007; Peretore & Clivaz, 2022a; Rogers, 2012; Rosen & Sappington, 2019; Sedlacek & Jarvis, 2010; Spitz, 1999; Wang et al., 2018). In essence, spending allocations, sometimes referred to as payouts or drawdowns, are “formula based on observable metrics that determines the amount the university will take from the endowment to spend in the current year” (Rosen & Sappington, 2019, p. 693). The premise of intergenerational equity is that future generations receive the same level of purchasing power as current generations. Appropriately devised spending policies provide a smooth allocation of resources despite weak investment returns, and the opposite is also valid. ACE (2021) stated, “When investment returns are robust, smoothing rules help ensure that any increased spending can be sustained into the future” (p. 12). In a strong or bull market, institutions may determine to make larger spending allocations and add more to the investment pool to ward off the impacts of a weaker or bear market.



Higher education institutions incorporate different spending policies, but the underlying premise is similar:

[Policy] provides a consistent, and growing, level of annual support in most years . . . offers a sufficient amount of long-term, total support of the operating budget while leaving enough capital in the endowment to compound for future generations . . . allows the endowment to prudently take on as much risk as needed to meet its long-term return objective . . . [and] allows an investment committee to stick with an allocation plan, especially during periods of sizeable market downturns. (Peretore & Clivaz, 2022b, p. 4)

Although higher education institutions, through their governing-board-approved investment and spending policies, may interpret these tenets differently, there are a few currently used spending policy models, including the moving average, inflation-based rules, hybrid, anchor and pointer, and others.

### ***Moving Average***

The most commonly used spending policy is the moving average. The spending rate is a formula derived based on historical market values, which include a smoothing effect to remove volatility with long-term investment strategies (Goldstein, 2019; Peretore & Clivaz, 2022a, 2022b; Sedlacek & Jarvis, 2010). The typical time period employed by the moving average is either a rolling 12 quarters or 20 quarters. The moving average is calculated based on the past endowment market values over the time period selected (i.e., 12 or 20 quarters). The spending rate is a predetermined percentage of the moving average as specified in the institutional investment policy. This technique dates back to the 1970s to help satiate spending rate volatility where previously only the ending endowment market value was used (Sedlacek & Jarvis, 2010).

The moving average methodology is used by about 74% of institutions with approximately 70% employing the 12-quarter time period (Peretore & Clivaz, 2022b; Sedlacek & Jarvis, 2010).

### ***Inflation-Based Rules***

Inflation-based rules are employed by a small number of institutions to incorporate fluctuations in the economy by choosing “to control volatility by attenuating the link between their spending formula and the market value of the endowment” (Sedlacek & Jarvis, 2010, p. 7). This calculation takes the previous year’s spending growth at an inflation rate and imposes an upper and lower band (Peretore & Clivaz, 2022b; Sedlacek & Jarvis, 2010). The inflation rate index used by institutions varies, but some examples are the Consumer Price Index or the Higher Education Price Index (HEPI). According to Sedlacek and Jarvis (2010), only about 3% of institutions employed this methodology in 2010.

### ***Hybrid Rules***

The hybrid method incorporates both the moving average and inflation-based rules. Stanford University originally developed this technique, and it is used by four of the five largest university endowments in the United States (Peretore & Clivaz, 2022b; Sedlacek & Jarvis, 2010). The hybrid rules method includes two most commonly used models: Hybrid 70/30 and Hybrid 80/20. For the Hybrid 70/30 model, 70% is weighted by an inflation factor and 30% is weighted to the moving average. Institutions that are more endowment dependent tend to employ a hybrid model because the spending allocation “results in a reduced volatility of spending due to the lower reliance on market-based calculations, while honoring the fact that market values do have an influence on the ability to spend” (Sedlacek & Jarvis, 2010, p. 7).

### ***Anchor and Pointer Rule***

Application of the anchor and pointer rule starts with setting a dollar amount as the anchor for initial spending and then setting a percentage rate for which future spending will increase (i.e., pointer; Garland, 2019). Over time, review of the anchor and pointer metrics should be revisited. The advantage of the anchor and pointer rule is the spending allocation has a base dollar amount each year, which provides consistency for higher education institutions to know how much funds are available to spend from the endowment each year.

### ***Other Rules***

According to the results of Sedlacek and Jarvis's (2010) research, some institutions in their study did not use any of the aforementioned methods but chose to determine their spending allocation each year (9%), decided to use all current income each year (4%), or applied their spending policy rate to the beginning period market value (4.9%). Although these other methodologies seem to disregard the smoothing effect of moving average, inflation-based, and hybrid models, these methodologies appeared to be used by institutions that were not endowment dependent. Even if an institution is not endowment dependent, there is a reliance on endowments for specific purposes as defined by the fund guidelines. Therefore, endowments provide institutions with both operating budget stability and flexibility because funds can be used for a variety of purposes.

### **Endowment Fund Support**

The AGB (2019b) stated:

Endowments allow colleges and universities . . . to fund a portion of their work continuously, generation after generation. The ways in which these funds have been

solicited from donors, applied to expenses, and stewarded over time are ultimately unique to each institution. (p. 2)

Endowment income has been a significant source of income for higher education institutions. Lapovsky (2007) stated, “Endowment funds support a percentage of the operating budget depending on the size of the endowment, the size of the budget, and the other sources of revenue” (p. 104). In 1900, endowment income supported up to 25% of educational costs; by 1950, the endowment supported approximately 5%; and today, the median support is less than 5% (Lapovsky, 2009; Shulman, 1980). College and university endowments provide direct and indirect benefits to society and higher education constituents.

### **Indirect Benefits**

Endowment funds in higher education provide indirect benefits to the university, surrounding communities, and the economy as a whole.

### ***Overall Economic Impact***

Indirectly, higher education endowment investments impact the overall economy similarly to other public and personal investments by providing market capital (AGB, 2019b). Higher education endowments comprise more than half of invested assets of nonprofit organizations.

### ***Impact Investing***

As individuals require more transparency and responsibility around endowment investment policies, universities are seeking opportunities to invest in areas that provide positive investment returns and social impact (Schor, 2020). Impact investing is rising as an area of social awareness. As a result, “foundations and endowments are thinking beyond just what their

portfolios can make; they are considering what their money can do” (Schor, 2020, p. 24). This approach requires active engagement in understanding investment practices in environmental, social, and governance (ESG) dimensions and in developing a socially responsible investment (SRI) policy. ESGs and SRIs span a continuum from passive to active. ESGs are more passive in that institutions agree to consider ESG factors in their investment strategy. SRI takes a more active approach in that there is a list of prohibited securities or types of organizations not included in the investment portfolio. Schor (2020) said, “An endowment’s prohibited names typically reflect the ethos of the university, such as banning firms involved with contraceptives, weapons manufacturing or, more recently, operating in carbon-based industries” (p. 26). Mission-based investment policies for endowments are an area of growing demand by students and other constituents. Endowment fund managers must consider incorporating various protocols related to impact investing in their investment philosophies to remain relevant. In addition, how a college or university invests its endowment funds can offer societal benefits.

### ***Operating Budget Support***

A variety of higher education constituents receive indirect benefits from endowments because endowment spend frees up funds to be used for other activities that offer direct benefits (AGB, 2019b; Nietzel, 2021). In 2009, on average, 10.5% of operating budgets were funded by endowments with a median of 4.8% (Lapovsky, 2009). For Harvard University, the higher education institution with the largest endowment value of nearly \$50 billion dollars in FY2022, endowment income supported 33% of its operating budget (Lapovsky, 2007; NACUBO-TIAA, 2023c). Accepting large endowed gifts can benefit the institution when funds are used to help

further the institutional mission. MacKenzie Scott's endowed gift exemplified beneficial support to higher education endowments.

MacKenzie Scott, an American novelist with a net worth of approximately \$57 billion as of May 2021, took part in the Giving Pledge where individuals pledged to give half of their wealth to charity ("MacKenzie Scott," 2021). Recently, Scott donated \$5.7 billion to a variety of nonprofits, including \$560 million to 23 public and private historically Black colleges and universities (HBCUs; Adedoyin, 2021b; Di Mento, 2021). For many of the colleges and universities, this donation was the single largest financial gift ever received. A majority of the HBCUs reported the proceeds increased their endowments substantially. Ruth Simmons, the president of Prairie View A&M University in Texas, received \$50 million from Scott's generous gift. According to Simmons, "I wanted to use most of it for the endowment to provide a flow of funds to support all the things standard universities have that a college like ours doesn't have" (Di Mento, 2021, para. 7). Scott's generous gift to HBCUs will benefit many students for generations to come.

### **Direct Benefits**

The 2021 NACUBO-TIAA Study of Endowments reported spending policy distributions by function with 47% supporting student financial aid, 15% for academic programs and research, 11% toward endowed faculty positions, 9% for operation and maintenance of campus facilities, and 18% toward all other purposes (NACUBO-TIAA, 2022c). Endowments, based on the specifics in gift/donor guidelines, provide direct support to various areas, including students, academics, operations, and strategic initiatives.

### *Students*

Students are typically the main beneficiaries of college and university endowments, with almost half the endowment spending supporting scholarships, grants, internships, learning opportunities, and other direct student support (ACE, 2000, 2014, 2021; Adedoyin, 2021a, 2021b; AGB, 2019b; NACUBO, 2021, 2022; Ngo, 2022; Nietzel, 2021). Hope College, a small, Christian, liberal arts college with about 3,100 students in Holland, Michigan, announced a free tuition model for its students (Adedoyin, 2021a; Hope College, n.d.). The Hope Forward plan started in Fall 2021 and provides 22 endowed full tuition scholarships to incoming first-year students. Instead of paying tuition up front, students are encouraged to pay it forward and invest after graduation.

This Hope Forward strategy, unanimously approved by the board of trustees, rests on the premise that the college could increase its endowment by more than \$1 billion in about a decade (Adedoyin, 2021a). Hope College's endowment market value in FY2020 was \$230 million and grew to \$277 million in FY2022 (NACUBO-TIAA, 2022a, 2023c). Hope College's goal was "to strengthen its alumni network so that, eventually, students who graduated from the program will be sustaining the students coming in" (Adedoyin, 2021b, para. 20). Although this goal is a lofty endeavor, if successful, Hope College's endowment will help sustain this program in perpetuity. In addition to supporting students directly, endowment spending grows a variety of academic endeavors.

### *Academics*

Endowments support higher education institutions with attaining high levels of academic quality (ACE, 2000, 2014, 2021; AGB, 2019b; NACUBO, 2021; Ngo, 2022; Nietzel, 2021).

Higher education institutions use endowment funds to explore new teaching methods, grow new academic fields, purchase academic resources such as library acquisitions, and advance research, providing important new discoveries in a variety of fields. In addition, faculty may receive direct support through endowed professorships and chairpersons. Endowed faculty positions assist higher education institutions with recruiting and retaining eminent scholars. Supporting both students and academics is central to institutional missions and having appropriate facilities is an area for continued endowment funding.

### ***Facilities***

Many higher education constituents benefit from innovative institutional physical facilities or assets. Endowments can complement institutional funds by providing modern classrooms and laboratories, information technologies, art and athletic centers, new construction infrastructure, and deferred maintenance (ACE, 2000, 2014, 2021; AGB, 2019b; NACUBO, 2021; Ngo, 2022; Nietzel, 2021; Riggs, 2006).

For FY2021, the Massachusetts Institute of Technology's (MIT) endowment earned an investment return of 55.5% (MIT News Office, 2021). According to President L. Rafael Reif, "This is a once-in-a-generation opportunity, and we must use it in a way that inspires big ideas and builds a stronger MIT at a time when the world needs breakthroughs in science more than ever" (MIT News Office, 2021, para. 4). Although there were a variety of plans for these increased funds, MIT planned to modernize campus facilities by strengthening classroom and digital learning infrastructure. Large endowment investment portfolio gains provide funds for institutions to further a variety of strategic initiatives.



### ***Strategic Initiatives***

According to Ngo (2022), “The ongoing nature of endowments means schools can develop long-term goals without fearing that they’ll run out of money before completing . . . [a] venture” (para. 15). By having a more reliable stream of revenue, endowments allow institutions to plan strategically over a longer period of time (ACE, 2000, 2014, 2021; AGB, 2019b; NACUBO, 2021; Ngo, 2022; Nietzel, 2021).

After Dartmouth College’s endowment earned a return of 46.5% in 2021, the college announced it will continue to invest in key long-term initiatives through its endowment (Nietzel, 2021; Trustees of Dartmouth College, 2021). Areas that Dartmouth College planned to invest in included the creation of a more welcoming and inclusive community; mental and physical health of students, faculty, and staff; and “positioning the institution for continued success in a rapidly changing higher-education landscape” (Trustees of Dartmouth College, 2021, para. 3).

Endowment gifts support an institution in many meaningful ways through scholarships to students, resources for innovative projects, funding capital projects, endowed faculty positions, and more. According to Mark Erickson, president of Northampton Community College in Pennsylvania, “Endowments are our secret sauce . . . They give us those extra things that make us stand out, and an ability to move to that next level in how we serve students and our community” (Guth, 2020, p. 20).

### **Underpinnings of Inflation**

Inflationary forces impact the underlying value of an institution’s financial resources. Careful management of endowment funds with an eye toward inflation can overcome these pressures.

## **Background on Inflation and Indices**

In his address at the 11th Regents Annual Trustee Conference in New York in 1975, William Bowen, then president of Princeton University, discussed the effects of inflation and economic recession on higher education (Bowen, 1975). At the time, higher education institutions, both private and public, were under serious financial strain due to the inflationary nature of the economy. Bowen noted Brown University had to withdraw over \$25 million from its endowment to fund current operations between 1968 and 1975, leaving a mere \$18 million for future withdrawals. Basically, Brown was living beyond its means and had to take drastic measures to help balance its operational budget by reducing faculty positions, scholarships and fellowships, and increasing charges. However, Brown was not alone. Cornell University, Harvard University, and Columbia University all expressed financial difficulty. Bowen (1975) stated, “The pervasive nature of the underlying pressures . . . Most visible and most significant has been the pressure exerted on the expenditure side of educational budgets by the inflation of the last few years” (p. 6).

Inflation is an increase in prices of goods and services over a period of time with a corresponding decrease in the purchasing power of money (Bowen, 1975; Commonfund Institute, n.d.-a, n.d.-b, 2021; Kennon & Kelly, 2022). Basically, it takes more money to buy the same level of goods and services. The rate of inflation is measured by changes in a price index with the Consumer Price Index being the most popular price index. A price index measures “the average change over time in the prices of a standard set of consumer goods and services known as a ‘market basket’” (Kennon & Kelly, 2022, para. 12). Procedurally, calculating the index is performed by measuring the price level of purchased items each year and comparing the

calculated amount to a base year (Commonfund Institute, n.d.-a, 2021). The value of a price index is that it only looks at price increases and not the quality or quantity of changes, documenting “additional revenues required for continuation of ‘business as usual’” (Commonfund Institute, n.d.-a, p. 1). Therefore, price indices support consistent funding and not improvements.

Higher education is a specialized market and has the tendency to become more expensive over time; therefore, other price indexes, such as the HEPI, are more appropriate. Bowen (1975) provided a perspective of the various indices and stated:

The Halstead Higher Education Price Index has risen at an appreciably faster rate over the last ten years (about 5.3% per year, on the average) than has either the Consumer Price Index (about 3.6% per year) or the Gross National Product Deflator (about 3.5% per year). Lest anyone under-estimate the magnitude of this differential, let me translate it into other terms: whereas prices in general have risen about 50% over the last decade, the cost of higher education, as approximated by this index, has risen over 75%. This pattern is consistent with the long-term tendency for the cost of education to rise more rapidly than prices in general—a phenomenon due principally to the labor-intensive nature of higher education and the greater difficulty in achieving productivity gains in education than in the economy generally. (p. 5)

Between 1961 and 2001, HEPI weighed price data for more than 100 items, specifically associated with higher education operating costs, including salaries and fringe benefits for faculty, staff, and administration; utilities; supplies and materials; and miscellaneous services (Commonfund Institute, n.d.-b, 2021). Since 2002, HEPI’s calculation has transitioned into a

regression-based index with an R-squared value of .999997809 (Commonfund Institute, n.d.-a, n.d.-b, 2021). For FY2021, the HEPI data showed costs for colleges and universities rose 2.7%, which represented a 42% year-over-year increase (Commonfund Institute, 2021).

### **Inflation Impact on Endowments**

Inflation can impact endowments negatively. During inflationary periods, some investments (e.g., bonds) perform negatively, resulting in lower earnings (Yates, 2022). In addition, there is an erosion of purchasing power from the spending allocation. Endowment investors need to understand the composition of their investment portfolio, risks, economic outlook, overall strategic objectives, spending allocation, and operating budget reliance (Mercer, 2022). Understanding inflation is critical for endowment investors (Mercer, 2022; Yates, 2022). Creating alignment between institutional need and the endowment through investment strategy and spending allocation that accounts for inflation can optimize results (Yates, 2022).

### **U.S. Stock Markets**

The direction of the U.S. stock market “is a major force that has a huge impact on [investments]” (Kramer, 2022, para. 1). Understanding stock market cycles and the impact on institutional endowment investment performance is paramount for higher education leadership. Thoughtful consideration of stock market history can help shape an institution’s endowment investment strategy during bull markets, bear markets, and long-term considerations.

#### **Bull Markets**

During bull markets, there is a general sense of optimism due to the strong economy and solid job growth (Wohlner, 2023). Bull markets are characterized by “an extended period of time during which the stock market rallies more than 20% from a low-water mark” (Duggan &

Katzeff, 2023, para. 6). There were 10 bull markets between 1926 and 2019, with the average duration of 6.5 years and average cumulative total return of 339% (First Trust, n.d.). The longest bull market commenced in 2009 and extended through 2020 (Wohlner, 2023). During a bull market, the economy is considered favorable or sound. Bull markets may be symptomatic of a positive outlook related to job market growth and overall economic conditions (Duggan & Katzeff, 2023; Kramer, 2022; Wohlner, 2023). Typically, the ideal strategy during a bull market is to take advantage of rising prices by purchasing stocks early and selling during peak prices, resulting in a positive return (Kramer, 2022). A bear market is the opposite of a bull market.

### **Bear Markets**

Whereas bull markets are typically optimistic in nature, bear markets have an overall sense of pessimism (Wohlner, 2023). A bear market is marked by an extended period of time where the stock market declines by 20% or more from its high-water point (Duggan & Katzeff, 2023). Characteristics of a bear market include low investor confidence and an overall declining economy (Wohlner, 2023). There were 11 bear markets between 1926 and 2019, with the average timeframe being 1.3 years with an average cumulative loss of 38% (First Trust, n.d.). Bear markets can be spurred on by general fears of a recession, economic downturn, or weakness; deteriorating investor sentiment; and geopolitical events such wars or elections (Duggan & Katzeff, 2023; Kramer, 2022; Wohlner, 2023). Historically, “bear market buyers have been handsomely rewarded for their boldness over the long term” (Duggan & Katzeff, 2023, para. 12). Between 2000 and 2022, there were four bear markets (Duggan & Katzeff, 2023; Wohlner, 2023).

## **Historical Perspective: 2000 to 2022**

The first 2 decades of the 21st century provided multiple swings in market conditions that proved informative when considering the long-term growth of endowments.

### ***Dot Com Bubble***

The first bear market between 2000 and 2022 occurred from 2000 to 2002 and is referred to as the dot com bubble. The dot com bubble was “a rapid rise in U.S. technology stock equity valuations fueled by investments in Internet-based companies during the bull market in the late 1990s. The value of equity markets grew exponentially during this period” (Hayes, 2023, para. 1). The equity valuation grew fivefold from 1995 to 2000 and dropped by almost 77% as the bubble burst, resulting in billions of dollars in losses and many internet companies failing (Hayes, 2023). This bear market lasted for 31 months, with a new bull market beginning 56 months later and lasting 5.1 years until the global financial crisis in 2007 (Duggan & Katzeff, 2023; First Trust, n.d.; Vanguard, 2024).

### ***Global Financial Crisis***

The bear market of 2007–2009 has been considered the most severe bear market in history since the stock market crash of 1929 (Duggan & Katzeff, 2023; Kenton, 2023). The global financial crisis started with a mortgage lending crisis in 2007 and grew to a global banking crisis with the failure of Lehman Brothers and Bear Stearns, two prominent investment banks, in September 2008. The U.S. government embarked on huge banking bailouts, which failed. The result was a global economic recession where the Standard & Poor 500 (S&P 500) Index dropped 56% during this time (Duggan & Katzeff, 2023; Kenton, 2023). This bear market

lasted for 17 months, with a new bull market beginning 49 months later and lasting until the COVID-19 global pandemic (Duggan & Katzeff, 2023).

### ***COVID-19 Global Pandemic***

The bear market due to the COVID-19 global pandemic lasted only 1 month from February 20, 2020, until March 23, 2020 (Duggan & Katzeff, 2023; Kenton, 2023). This recession was unique in that widespread panic and uncertainty regarding the future of the global economy ensued. During this time, the S&P 500 dropped by 34% while the government mandated business shutdowns. The market rebounded quickly as the U.S. government provided \$5.2 trillion in stimulus funds (Duggan & Katzeff, 2023; Kenton, 2023). This bear market lasted 1 month and, beginning 5 months later, a new bull market emerged, lasting until the postpandemic supply chain crisis in 2022 (Duggan & Katzeff, 2023).

### ***Postpandemic Supply Chain Crisis***

Despite the U.S. government providing extensive stimulus funds, the COVID-19 global pandemic triggered supply chain disruptions (Duggan & Katzeff, 2023). In addition, Russia invaded Ukraine, resulting in U.S. inflation rates skyrocketing, and triggering sell off in growth and technology stocks. The bear market lasted 10 months and the S&P 500 declined by 25%. A new bull market emerged 8 months later.

### **Long-Term Considerations**

The recent history of the U.S. market conditions showed that bear markets are typically short in duration and bull markets emerge quickly. Therefore, over the long term, investors should maintain their investing style irrespective of market type—bull or bear market. In fact, “experts recommend that they have an asset allocation that reflects their risk tolerance, their

investing time horizon, and their long-term goals” (Wohlner, 2023, para. 9). Diversification of investments is a solid strategy because both bull and bear markets will occur during a normal long-term investment period. Periodic review of the endowment investment pool is necessary and rebalancing the portfolio should be assessed.

### **Summary**

Private 4-year higher education institutions are facing a funding dilemma. Endowment funds can provide alternative revenue sources to help support the institution. Although endowment funds have a designated purpose for use, the use of these funds can help supplant funds that an institution would typically fund through their operating budget. Choosing the appropriate strategy for managing endowment funds, which includes assessing the suitable investment strategy, spending allocation, and risk appetite, can support overall institutional goals while honoring donor intent. Endowment management affords countless opportunities for the institution, faculty, staff, students, community, and donors.



### **Chapter 3: Methodology**

The purpose of this quantitative study was twofold: (a) to determine whether more aggressive investment strategies increase overall endowment value growth significantly and (b) to ascertain which of several spending allocation approaches provides a consistent and reliable source of revenue on an annual basis. By first modeling investment strategies and spending allocation methodologies for 27 private 4-year institutions from 2000–2022, and then performing quantitative statistics on the calculated investment returns and spending payouts values, the following research questions were addressed:

1. Which investment asset allocation philosophy and resulting investment performance provided the largest long-term endowment growth (i.e., largest endowment value) over the period of study?
2. Which spending allocation strategy provided a consistent and reliable source of revenue on an annual basis over the period of study?

A Friedman’s two-way analysis of variance (ANOVA) by ranks, a nonparametric approach to a repeated measures ANOVA, helped to test the null hypothesis “that there is no significant difference between the size of ‘k’ dependent samples and the population from which these have been drawn” (Statistics Solutions, n.d., para. 2). This chapter describes the quantitative research design, followed by selected institutions, instrumentation, analysis, and data quality.

#### **Quantitative Research Design**

A quantitative research design was most appropriate to answer the research questions because this study examined the relationship among ratio scale variables that could be measured and analyzed using statistical procedures through an unbiased approach (Creswell, 2009;

Creswell & Creswell, 2018). This study evaluated the relationship among the independent variables of investment strategy and spending allocation policy to dependent variables of endowment value and spending allocation allotment. Whether the main analysis used was parametric (i.e., repeated measures ANOVA) or nonparametric (i.e., Friedman's two-way ANOVA by ranks) was determined based on the evaluation of normality for the endowment investment strategy data.

### **Selected Institutions**

The institutions included in this study were private 4-year degree-granting institutions in the Higher Education Price Index (HEPI) West North Central region that responded to the annual National Association of College and University Business Officers and Teachers Insurance and Annuity Association of America (NACUBO-TIAA) Study of Endowments for fiscal years (FYs) ending in 1999/2000 through 2021/2022 (Commonfund Institute, 2013, 2021, 2022; NACUBO-TIAA, 2022a, 2023a). Private institutions were selected to provide a sample of colleges/universities that have historically relied more on endowments than public institutions (Anderson, 2019). Twenty-seven institutions met these criteria (see Table 1).

**Table 1**

*HEPI West North Central Private Institutions Responding to the NACUBO-TIAA Study of Endowments From 1999/2000 to 2021/2022*

College/institution	State
Buena Vista University	Iowa
Carleton College	Minnesota
Central College	Iowa
Columbia College	Missouri
Cornell College	Iowa
Creighton University	Nebraska
Culver-Stockton College	Missouri
Doane College	Nebraska
Drake University	Iowa
Drury University	Missouri
University of Dubuque	Iowa
Grinnell College	Iowa
Gustavus Adolphus College	Minnesota
Hamline University	Minnesota
Luther College	Iowa
Macalester College	Minnesota
Maryville University-St. Louis	Missouri
Morningside College	Iowa
Northwestern College	Iowa
College of the Ozarks	Missouri
Rockhurst University	Missouri
Saint John's University	Minnesota
Saint Louis University	Missouri
St. Olaf College	Minnesota
College of St. Scholastica	Minnesota
University of St. Thomas	Minnesota
Washington University	Missouri

### **Instrumentation**

For this research, I used publicly available data sources, including the annual NACUBO-TIAA Study of Endowments published data sets, institutional annual Internal Revenue Service (IRS) Form 990 tax returns, Integrated Postsecondary Education Data System (IPEDS), HEPI inflation factors, and investment returns. Various data points were used to build models in Microsoft Excel (Version 23.04), data analysis was performed using IBM SPSS Statistics (Version 28.0.1.1), and figures were constructed using OriginPro 2024 (Version 10.1.0.170 [Learning Edition]).

### **Data Collection**

The information obtained from the sources listed in Table 2 was entered into Microsoft Excel for the 27 institutions. Data for each institution were input into a separate Microsoft Excel workbook that contained a data sheet and separate sheets for each spending allocation and investment portfolio strategy. This process resulted in 15 separate worksheets containing each investment-spending combination. Models for each of these combinations were developed within their corresponding sheet, respectively.

**Table 2***Data, Sources, and Timeframe*

Data	Source	Timeframe
Beginning endowment value	NACUBO-TIAA Study of Endowments	1995–2000
Beginning endowment value	IPEDS	1995–2000
Ending endowment value	IRS Form 990, Schedule D, Part 5	2008
Endowment gifts/contributions	IRS Form 990, Schedule D, Part 5	2008–2022
Endowment investment earnings	IRS Form 990, Schedule D, Part 5	2009–2022
Endowment spending amount	IRS Form 990, Schedule D, Part 5	2009–2022
Administrative expenses	IRS Form 990, Schedule D, Part 5	2009–2022
% of endowment: Quasi	IRS Form 990, Schedule D, Part 5	2009–2022
% of endowment: Permanent	IRS Form 990, Schedule D, Part 5	2009–2022
% of endowment: Term	IRS Form 990, Schedule D, Part 5	2009–2022
Annual inflation rate	HEPI, West Central region	2000–2022
Equity investment returns	S&P 500 historical returns	1994–2022
Fixed-income investment returns	Bloomberg Barclays's Aggregate Bond Index	1995–2022

*Note.* NACUBO-TIAA = National Association of College and University Business Officers and Teachers Insurance and Annuity Association of America, IPEDS = Integrated Postsecondary Education Data System, IRS = Internal Revenue Service, HEPI = Higher Education Price Index, S&P = Standard & Poor.

For a given institution, the reported endowment values from 1994/1995 to 2021/2022 from the NACUBO-TIAA Study of Endowments and the end-of-year endowment values reported on IRS Form 990 from tax years 2009 to 2021 were entered into separate columns in the institutional Microsoft Excel workbook. On occasion, an institution failed to report their endowment information for the NACUBO-TIAA Study of Endowments. In these instances, I obtained the endowment values from IPEDS. Similarly, additional endowment fund data from Schedule D Part V of the institution's IRS Form 990s filings were input into separate columns

for the following categories: contributions, investment earnings or losses, grants or scholarships, other expenditures for facilities and programs, administrative expenses, and end-of-year balance. Endowment and related values from these IRS forms were not available prior to tax year 2009; however, the 2008 ending endowment value was contained in the 2009 tax form listed as the beginning balance of the following year (i.e., 2009). Other information used in this study included inflation data from 2000 to 2022 (i.e., HEPI), equity return rates from 1994 to 2022 (i.e., Standard & Poor [S&P] 500 historical return), and fixed-income rates from 1995 to 2022 (i.e., Bloomberg Barclays's Aggregate Bond Index; New York University, 2023; P. Hager, personal communication, June 1, 2023).

### **Data Operationalization**

Next, I used the data to model the measures of interest in this study (i.e., endowment growth over time and spending allocation based on the ending endowment value for any particular year). An institution's endowment value is the composition of a variety of variables, including endowment values, contributions, investment earnings/returns, spending allocation, approved distributions in excess of the spending allocation, and management fees. Equation 1 depicts this relationship for any given year:

$$\textit{End Value}_x = \textit{End Value}_{x-1} + \textit{Contrib} + \textit{or} - \textit{Return} - \textit{Spend} - \textit{Add Dist} - \textit{Fees} \quad (1)$$

where  $\textit{End Value}_x$  is the ending endowment value,  $\textit{End Value}_{x-1}$  is the beginning endowment value or prior year ending endowment value,  $\textit{Contrib}$  is contributions,  $\textit{Return}$  is investment earnings or losses,  $\textit{Spend}$  is calculated allowable spend,  $\textit{Add Dist}$  is additional board approved distributions, and  $\textit{Fees}$  are management fees. The total endowment value over a span of years can be expressed by Equation 2:

$$\sum_{SY_{\alpha}}^{SY_w} End Value_x \quad (2)$$

where  $SY_{\alpha}$  is the beginning year of a span of interest and  $SY_w$  is the end year of that span.

For this study, the only two variables of Equation 1 that I manipulated were investment earnings or losses (i.e., *Return*) based on the three investment strategies employed (i.e., 70/30, 80/20, and 90/10) and the calculated allowable spend (i.e., *Spend*) based on the five spending allocation methodologies used (i.e., 12-quarter moving average, 20-quarter moving average, inflation based, Hybrid 70/30, and Hybrid 80/20). Table 3 lists the 15 models employed across the 27 institutions.

**Table 3**

*Spending Allocation and Investment Portfolio Models*

Model #	Spending allocation methodology	Investment portfolio allocation	Naming convention
1	12-quarter moving average	70% equity/30% fixed income	12 Quarter 70/30
2	12-quarter moving average	80% equity/20% fixed income	12 Quarter 80/20
3	12-quarter moving average	90% equity/10% fixed income	12 Quarter 90/10
4	20-quarter moving average	70% equity/30% fixed income	20 Quarter 70/30
5	20-quarter moving average	80% equity/20% fixed income	20 Quarter 80/20
6	20-quarter moving average	90% equity/10% fixed income	20 Quarter 90/10
7	Banded inflation	70% equity/30% fixed income	Banded 70/30
8	Banded inflation	80% equity/20% fixed income	Banded 80/20
9	Banded inflation	90% equity/10% fixed income	Banded 90/10
10	Hybrid 70/30	70% equity/30% fixed income	Hybrid 70/30 – 70/30
11	Hybrid 70/30	80% equity/20% fixed income	Hybrid 70/30 – 80/20
12	Hybrid 70/30	90% equity/10% fixed income	Hybrid 70/30 – 90/10
13	Hybrid 80/20	70% equity/30% fixed income	Hybrid 80/20 – 70/30
14	Hybrid 80/20	80% equity/20% fixed income	Hybrid 80/20 – 80/20
15	Hybrid 80/20	90% equity/10% fixed income	Hybrid 80/20 – 90/10

To determine which investment asset allocation philosophy led to the greatest endowment growth (i.e., largest ending endowment value in 2022), the endowment value for the year ending 1995 was used as the initial input to the model because the data 5 years prior were necessary to calculate the 20-quarter moving average. The investment asset allocation between equity securities and fixed income was applied for each of the investment philosophies employed in the study (i.e., 70% equity securities and 30% fixed income [70/30], 80/20, and 90/10). This application was used to calculate the returns for the equity and fixed-income apportionments, respectively. The returns were added to the beginning endowment value for a given year to determine the endowment value before the spending allocation. The spending allocation strategies (i.e., 12-quarter moving average, 20-quarter moving average, banded inflation, Hybrid 70/30, and Hybrid 80/20) were applied to the ending endowment value for each investment and spending combination. The rate roughly corresponded to 5% of the ending endowment value for a year. For modeling purposes, the annualized investment values were used as the return for each quarter within a given year for the spending allocation calculations.

For example, to determine the spending allocation for a beginning endowment value of \$100,000 that employs the 70/30 asset allocation philosophy, \$70,000 would be invested in equity securities (e.g., stocks) and \$30,000 would be invested in fixed income (e.g., bonds). Then, the annual return for equity securities (e.g., S&P 500 historical return) would be applied to \$70,000 and the annual return rate for fixed income (e.g., Bloomberg Barclays's Bond Index) would be applied to \$30,000. If the equity securities return was 10% and the fixed income was 5%, the return on investment for each would be \$7,000 and \$1,500, respectively. The sum of these values were then added to the beginning endowment value, making the ending endowment



value for that year before applying the annual spending allocation as \$108,500. If the resultant spending allocation philosophy was the 12-quarter moving average, the actual spending allocation would amount to 5% of the average endowment value over the prior 12 quarters. Hypothetically, given the 12-quarter moving average was \$90,000, the resultant spending allocation would be 5% of that average, which would be \$4,500 in this case. That allocation would then be subtracted from the ending endowment value based solely on investments (i.e., \$108,500), making the new ending endowment value for that year \$104,000. That number then becomes the beginning endowment value for the next year. I repeated this process across the timespan of interest (i.e., 2000 to 2022). See Table 4 for a listing of the protocols employed and their computation for all drawdown strategies. For each of the models employed, 5% was used as the selected percentage.

**Table 4***Spending Allocation Descriptions*

Spending allocation methodology	Description
12-quarter moving average	A specified percentage of the moving average market value, based on a 12-quarter average of beginning endowment market values.
20-quarter moving average	A specified percentage of the moving average market value, based on a 20-quarter average of beginning endowment market values.
Banded inflation	Last year's spending allocation grown at an inflation rate but bounded by upper and lower bands. Spending for Year <sub>x</sub> = Spending for Year <sub>x-1</sub> (1 + inflation factor) bound by: ≤ 4% x beginning period endowment value for Year <sub>x</sub> and ≥ 6% x beginning period endowment value for Year <sub>x</sub>
Hybrid 70/30	70% weighted to an inflation factor 30% weighted to endowment market value (Spending for Year X-1 x [1 + inflation factor] x 70%) + (5% endowment market value x 30%)
Hybrid 80/20	80% weighted to an inflation factor 20% weighted to endowment market value (Spending for Year X-1 x [1 + inflation factor] x 80%) + (5% endowment market value x 20%)

In the aforementioned example, the only input that would change across institutions is the starting endowment value. Therefore, the performance of any given institution is proportional to that of any other. Thus, when the data are normalized, all the data points across institutions for a given investment and spending strategy combination would be identical for a given year. In any real-world scenario, this example is extremely unlikely due to differences in investment portfolio composition, increases in endowment value due to new gifts or increases in existing endowment contributions, decreases due to investment fees and exceptional drawdowns for specific purposes, and other situations. To capture these differences within the model, I calculated the

percent difference in endowment values reported in the NACUBO-TIAA Study of Endowments or IPEDS data and the reported endowment values on IRS Form 990 for each year from 2008 to 2022. The mean and standard deviation across these years were used as measures of an entity's institutional variability index (IVI). Separate randomized return rates for the equity and fixed-income investments were drawn from a normal distribution centered on the listed equity and fixed-income return rates for each year, respectively. The randomized return rate was calculated using the NORMINV function in Microsoft Excel with the probability determined via the RAND procedure, mu (i.e., the mean of the distribution) set to the reported index return for that year for the specific investment type under considerations (i.e., S&P 500 historical return or Bloomberg Barclays's Aggregate Bond Index), and sigma set to the IVI standard deviation. The new equity return rate was set to the outcome of this procedure, whereas the fixed-income return rate was set to half of that value. The latter was instituted based on the long-known history of fixed-income return rates being lower and less volatile.

For example, to determine the IVI if the standard deviation for the institution was 10%, the return rate for that year was 8%, and the random probability generated was .23, the resultant return rate used for that index would be 0.612% if it were for equity securities. For fixed-income instruments, the return rate would be 0.306%.

Because starting endowment amounts differed drastically across institutions, the ending endowment values and resultant spending allocations for each year were normalized to place the data on the same scale should parametric evaluations prove justified. The ending endowment values used were those after the spending allocations were taken into account for any given year.

The ending endowment values and spending allocations across institutions from FY2000 to FY2022 were used for analysis. To facilitate this analysis, I consolidated the modeling outcomes for each institution within their dedicated Microsoft Excel workbook into an overall table. This table included the endowment and spending allocation values for every institution by every investment and spending strategy combination. The consolidated table was then configured for import into and analysis by IBM SPSS Statistics and figure composition using OriginPro.

### **Analysis**

After running each institution through the 15 different models (see Table 3), the next step in the planned analyses included calculating descriptive statistics (see Appendix A, Tables A1 and A2) for both the spending allocation and investment strategy data. To answer the first research question, or which investment allocation philosophy and resulting investment performance provided for the largest long-term endowment growth (i.e., largest endowment value) over the period of study, the ending endowment values for each year from 2000 to 2022 were modeled for each of the 27 institutions, resulting in 3,105 ending endowment values for each of the three investment allocation philosophies. To analyze the second research question, or which spending allocation strategy provided a consistent and reliable source of revenue on an annual basis, the calculated spending allocation strategies for each year from 2000 to 2022 were modeled for each of the 27 institutions, resulting in 1,863 annual spending amounts for each of the five spending allocation strategies.

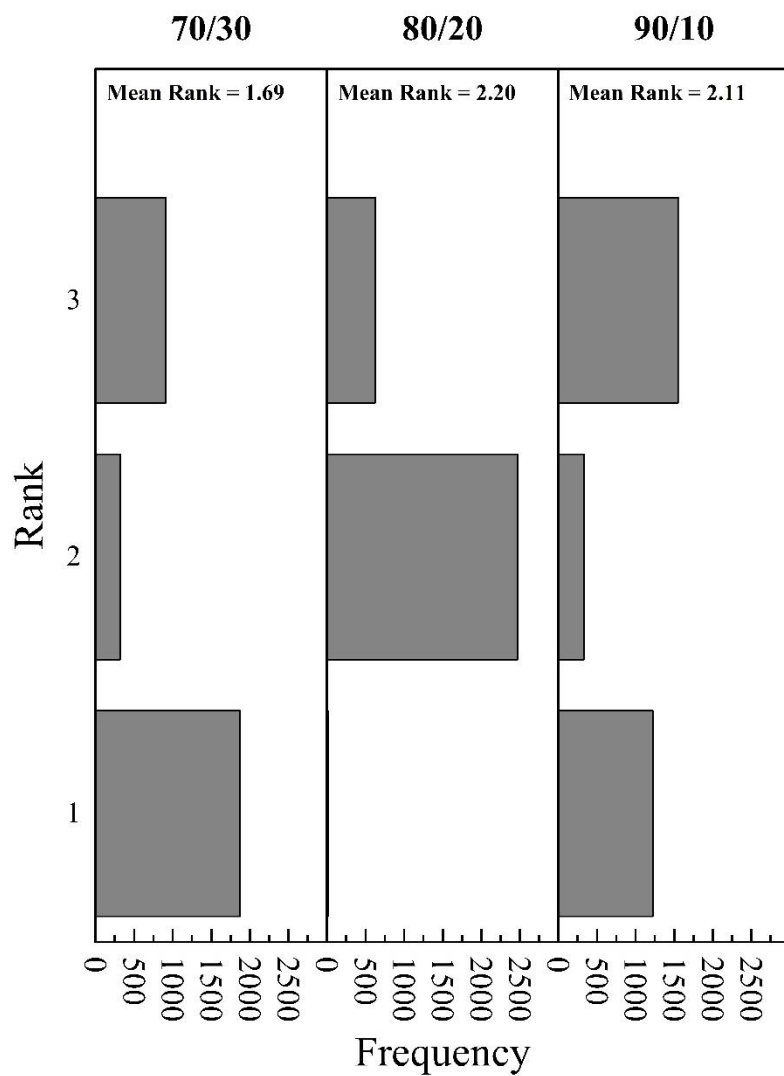
After reviewing the descriptive statistics, I conducted checks for violations of normality using the raw data for the ending endowment value in the final year of the model. Any potential violations of normality were evaluated using the Kolmogorov-Smirnov test with a Lilliefors

significance correction. If the results were significant, normality was violated, and a check for extreme outliers was performed using box plots of the ending endowment value data for the final year (i.e., 2022). For purposes of this study, extreme outliers matched the designation used in SPSS (i.e., third and first quartiles plus and minus 3 times the interquartile range, respectively). Any institutions identified as extreme outliers were then removed from the data set and normality for the remaining institutions was evaluated again. Should the resultant distribution still violate normality, normative transforms (i.e., logarithmic, inverse, square root, cube root, and fourth root) were applied and normality reassessed (DeCoster, 2001). If normality was achieved for a given transform or transforms, the transform data with the least skew were used for further analysis using parametric procedures. Should none of the transforms result in normally distributed data, nonparametric statistical procedures were used. The nonparametric equivalent in this instance was Friedman's two-way ANOVA by ranks with planned post hoc comparisons.

To assess the first research question as to which investment strategy resulted in the largest ending endowment value, the investment strategy with the greatest frequency and largest mean rank was deemed to be the best investment strategy (see Figure 1). Similarly, the spending allocation strategy with the most consistent frequency counts and the largest mean rank was considered the most stable spending allocation strategy.

**Figure 1**

*Frequency Counts for Ending Endowment Value by Investment Strategy*



*Note.* The three panels represent the composition of equity to fixed-income investments by percentage. The highest rank (i.e., 3) represents the largest ending endowment value.

### **Data and Study Quality**

To ensure data quality, I performed various checks and balances throughout the study related to both the Microsoft Excel models and the data input. To validate the initial Microsoft Excel model, a professional financial advisor reviewed the initial calculations for accuracy (P. Hager, personal communication, January 8, 2023). A secondary review of the Microsoft Excel models was performed by an additional financial advisor. The same professional financial advisor was consulted as to the best annual return indices for equities and fixed-income investments. As a result, the S&P 500 for equity investment and Bloomberg Barclays's Aggregate Bond Index for fixed-income investments were implemented. Bloomberg Barclays's Aggregate Bond Index is composed of 35% treasury bonds, 10% government-rated bonds, 25% corporate bonds, and 30% securitized agency bonds (P. Hager, personal communication, June 1, 2023).

For institutional endowment data, I used the annual NACUBO-TIAA Study of Endowments information; IPEDS; and IRS Form 900, Schedule D Part V. Use of static return values for a given year within the models would be deterministic and eliminate any variability in investment performance that would inevitably arise across institutions. Therefore, an IVI was computed for each institution using the difference in reported endowment values for a given year between the NACUBO-TIAA Study of Endowments—or IPEDS, if the NACUBO-TIAA Study of Endowments value was not available—and the institutions' IRS Form 990. The standard deviation of these differences across years for a given institution served as the IVI. For equity investment returns, the IVI served as the standard deviation for the random selection of a return percentage from a normal distribution, wherein the stated return for that index for a given year

served as the mean. Fixed-income returns were randomized in an identical fashion except that the IVI was halved to account for less variability in returns for this index.

### **Reliability, Validity, and Generalizability**

Olabode et al. (2019) stated, “The quality of data (primary or secondary) utilised in any research determines the outcome of the research and its importance for further research work and relevance to business or statistical institutes” (p. 27). Digital technology has provided easy access to a variety of large data sets, allowing researchers to perform studies through alternative methods besides traditional surveys. In fact, “secondary data analysis has become commonly recognized as a legitimate form of scientific inquiry” (Boo & Froelicher, 2013, p. 130). Many reputable professional organizations and government agencies conduct large national surveys, including those serving higher education. These databases are considered reliable sources of information due to the rigor with which the information is obtained and compiled. The annual NACUBO-TIAA Study of Endowments data obtained for this study were reported by the institutions themselves and represented the most current information available at the time of reporting. NACUBO (2023a) stated:

Results from the NACUBO-TIAA Study of Endowments are based on a web-based survey that is sent to approximately 1,100 colleges, universities, and affiliated foundations in the United States. Data collection begins in September of each year and usually ends by mid December. Final results are usually posted to the NACUBO web site by mid February. (para. 2)

Additionally, the reported endowment values could be verified through IRS Form 990s and institutional annual reports. Some minor discrepancies between IRS Form 990 and the



endowment values reported for the NACUBO-TIAA Study of Endowments and the annual institutional reports owed to differences in reporting timelines and structures. Given the nature of the source and their reputation within higher education, the data were deemed reliable.

The U.S. Department of Education's National Center for Education Statistics (NCES) collects data on U.S. postsecondary education institutions that participate in federal student financial aid programs on an annual basis. The NCES (n.d.) addressed reliability in Standard 2-6-3, which stated:

The scores obtained by a test instrument must be free from the effects of random variations due to factors such as administration conditions and/or differences between scorers. The reliability of the scores must be adequate for the intended interpretations and uses of the scores. The reliability must be reported, either as a standard error of measurement or as an appropriate reliability coefficient (e.g., alternate form coefficient, test-retest/stability coefficient, internal consistency coefficient, generalizability coefficient). Methods (including selection of sample, sample sizes, sample characteristics) of quantifying the reliability of both raw and scale scores must be fully described. Scorer reliability, rater to rater, and rater-year reliability must be reported when the scoring process involves judgment. All relevant sources of measurement errors and summary statistics of the size of the errors from these sources should be reported. When average scores for participating groups are used, the standard error of measurement of group averages should be reported. Standard error statistics should include components due to sampling examinees, as well as components due to measurement error of the test instrument. Reliability information on scores for each group should be reported when an

instrument is used to measure different groups (e.g., race/ethnicity, gender, age, or special populations). Reliability information should be reported for each version of a test instrument when original and altered versions of an instrument are used. Separate reliability analyses should be performed when major variations of the administration procedure are permitted to accommodate disabilities. (para. 16)

In addition, a researcher must establish validity in their research because validity provides meaningfulness and the aim of a study is supported by the tests performed (Salkind & Frey, 2020). Essentially, validity focuses on whether or not the methods and techniques performed relate to the subject of the study. The NCES (n.d.) addressed validity in Standard 2-6-2, which stated:

All test instruments used in NCES surveys must meet the purpose(s) stated in the instrument specifications. All intended interpretations and proposed uses of raw scores, scale scores, cut scores, equated scores, and derived scores, including composite scores, subscores, score differences, and profiles, must be supported by evidence and theory. Evidence of validity should be based on analyses of the content, response processes (i.e., the thought processes used to produce an answer), internal structure of the instrument, and/or the relationship of scores to a criterion. The rationale for each intended use of the test instruments and test proposed interpretations of the scores obtained should be explicitly stated. When judgments occur in the validation process, the selection process for the judges (experts/observers/raters) and the criteria for judgments should be described. (para. 12)

According to Howell (1997), factorial designs allow greater generalizability of results when compared to one-way designs. In addition, I selected private 4-year institutions to emphasize the importance of endowment growth on spending and overall financial stability. The findings from this study are applicable to other institutions of higher education that have endowments because the investment strategies and spending allocation formulas are generally consistent across institutions and fall within the range employed for this study.

### **Institutional Review Board Approval**

I submitted an Institutional Review Board (IRB) protocol, and the IRB determined the protocol did not involve human subjects. Thus, further review by the IRB was not needed (see Appendix B).

### **Summary**

This quantitative research study sought to determine the optimal endowment pool investment strategy and spending allocation method that provided a consistent and reliable spending allocation and maximized investment performance (i.e., largest endowment value) over the long-term horizon. By modeling endowment pool investment strategies based on composition of equity to fixed-income strategy and assessing various spending allocation methods for selected private 4-year higher education institutions, I identified the models that provided the most consistent balance funds available to spend and endowment growth. The parametric or nonparametric repeated measures test employed was based on the evaluation of normality for the ending endowment values across institutions and years.

## **Chapter 4: Results**

I performed analyses to determine the optimal spending and investment portfolio strategies that answered the two research questions that guided this study:

1. Which investment asset allocation philosophy and resulting investment performance provided the largest long-term endowment growth (i.e., largest endowment value) over the period of study?
2. Which spending allocation strategy provided a consistent and reliable source of revenue on an annual basis over the period of study?

A methodological approach was used to determine whether parametric or nonparametric repeated measures tests with post hoc comparisons were employed. This chapter describes the quantitative analyses performed and synthesizes the findings, followed by a general summary of the applicable outcomes.

### **Analyses Performed**

To determine the optimal investment portfolio strategy, or the first research question, the data were first evaluated for violations of normality using the Kolmogorov-Smirnov test with a Lilliefors significance correction on the raw data for the ending endowment value in the final year of the model (see Table 5). The outcomes revealed the investment strategy distributions differed from normality significantly based on the significance value of .000 for all three investment strategies studied. As such, the data were evaluated for extreme outliers using box plots and the SPSS standard evaluations for outlier designation.

**Table 5**

*Kolmogorov-Smirnov With Lilliefors Significance Correction Test Results for Assessing Normality of Investment Portfolio Strategy*

Investment strategy	Kolmogorov-Smirnov <sup>a</sup>		
	<i>D</i>	<i>df</i>	<i>p</i>
70/30	.332	3105	.000
80/20	.332	3105	.000
90/10	.333	3105	.000

a. Lilliefors significance correction.

The following institutions were determined to be extreme outliers due to their large beginning endowment value: Carleton College, Grinnell College, Macalester College, Saint Louis University, and Washington University. Data for these institutions were removed from the original data set and I evaluated normality for the remaining institutions again. The violation of normality remained as per the aforementioned processes. Next, normative transforms (i.e., logarithmic, inverse, square root, cube root, and fourth root) were applied and normality reassessed (DeCoster, 2001). The data still failed to meet normality. Therefore, all removed outliers were reinstated into the data set and I employed the nonparametric equivalent to a repeated measures analysis of variance (ANOVA) test (i.e., the Friedman test) with planned post hoc comparisons. An advantage of distribution-free tests is “many of them rank the raw scores and operate on those ranks, [offering] a test of differences in central tendency that are not affected by one or a few very extreme scores (outliers)” (Howell, 1997, p. 646).

I evaluated the endowment values and spending allocations using separate Friedman’s two-way ANOVA by ranks tests with planned post hoc comparisons ( $\alpha = .025$ ). Howell (1997)

stated, “The major advantage generally attributed to distribution free tests is . . . they do not rely on any very seriously restricted assumptions concerning the shape of the sampled population(s)” (p. 646). Friedman’s two-way ANOVA by ranks is a nonparametric approach to a repeated measures ANOVA. I used this procedure to “test that there is no significant difference between the size of ‘k’ dependent samples and the population from which these have been drawn” (Statistics Solutions, n.d., para. 2). However, a limitation of this type of evaluation is “it does not test for row effects or interaction effects” (The MathWorks, Inc., n.d., para. 6).

To address the first research question, the Friedman test outcomes for endowment value by investment strategy were significant overall ( $\chi^2 = 463.681$ ,  $df = 2$ ,  $p < .000$ ). Thus, at least one of the investment strategies differed from the other two and the null hypothesis ( $H_0: I_{70/30} = I_{80/20} = I_{90/10}$ ) should be rejected. Post hoc pairwise comparisons (see Table 6) revealed each investment strategy differed from the others, with the 80/20 strategy producing the highest mean rank (2.20) and the 70/30 strategy the lowest rank (1.69). Figure 1 depicted the rank ordering frequencies by investment strategy used in the analysis. Overall, the 80/20 investment strategy tended to result in the highest mean rank, followed closely by the 90/10 investment strategy (see Figure 2). Figure 3 depicts the median endowment value across years for each investment strategy, with the 95% confidence interval designated by the vertical extent of each box. There was substantial overlap in the confidence intervals between the 80/20 and 90/10 investment strategies and a more modest of those with the 70/30 investment strategy. Although the 90/10 results differed from those of the 80/20 strategy, examination of Figure 3 illustrates this difference was not substantial at the 95% confidence level.

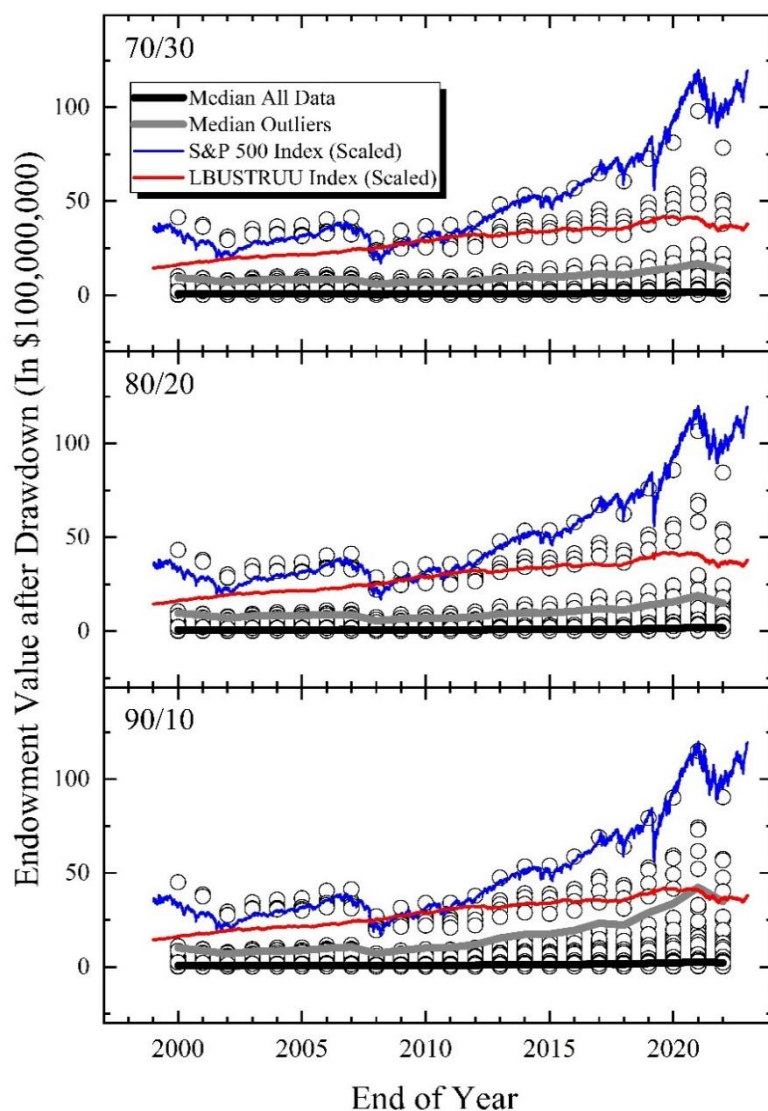
**Table 6***Endowment Investment Strategy Protocol Pairwise Comparisons*

Investment comparisons	Mean rank difference	SE	z	p	Adj. p <sup>a</sup>
70/30–90/10	-0.421	0.025	-16.579	.000	.000
70/30–80/20	-0.512	0.025	-20.158	.000	.000
90/10–80/20	0.091	0.025	3.579	.000	.001

a. Significance values were adjusted by the Bonferroni correction for multiple tests.

**Figure 2**

*End-of-Year Endowment Value per Investment Strategy by Year*

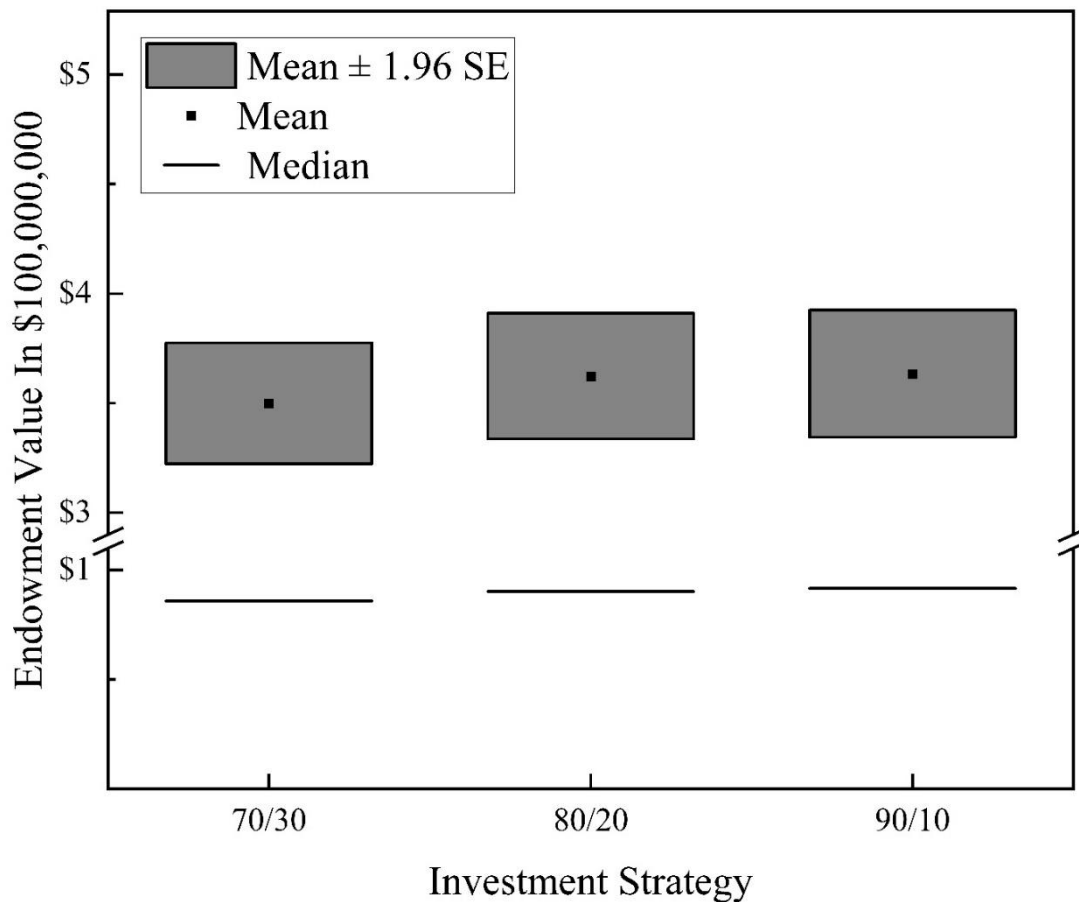


*Note.* The open circles represent the end-of-year endowment value for each institution for each year by investment strategy, which is listed in the upper-left-hand corner of each panel. The black line in each panel represents the median endowment value per year and the gray line represents the median endowment value per year for the five institutions with the highest starting endowment values.



**Figure 3**

*Mean Endowment Value and 95% Confidence Interval by Investment Strategy*



*Note.* The top and bottom border of each box in the plot represents the extent of the 95% confidence interval about the mean.

Similarly, for the second research question, the Friedman test outcomes for spending allocation by protocol were significant overall ( $\chi^2 = 2991.488$ ,  $df = 4$ ,  $p < .000$ ). Thus, at least one of the spending allocation protocols differed from the other four. Post hoc pairwise comparisons revealed most of the spending protocols differed from one another ( $\alpha = .025$ ; see Table 7). The highest mean rank ( $MR = 3.85$ ) was associated with the Hybrid 70/30 protocol.

However, it did not differ significantly from the Hybrid 80/20 protocol ( $MR = 3.74$ ) because the adjusted significance with the Bonferroni correction was .382. The 12-quarter moving average, 20-quarter moving average, and banded inflation spending strategies differed from each other as well as from the Hybrid 70/30 and Hybrid 80/20. Therefore, the null hypothesis ( $H_0: S_{12Q} = S_{20Q} = S_{BI} = S_{H70/30} = S_{H80/20}$ ) was rejected. Figure 4 depicts the rank ordering frequencies by spending allocation protocol used in the analysis.

**Table 7**

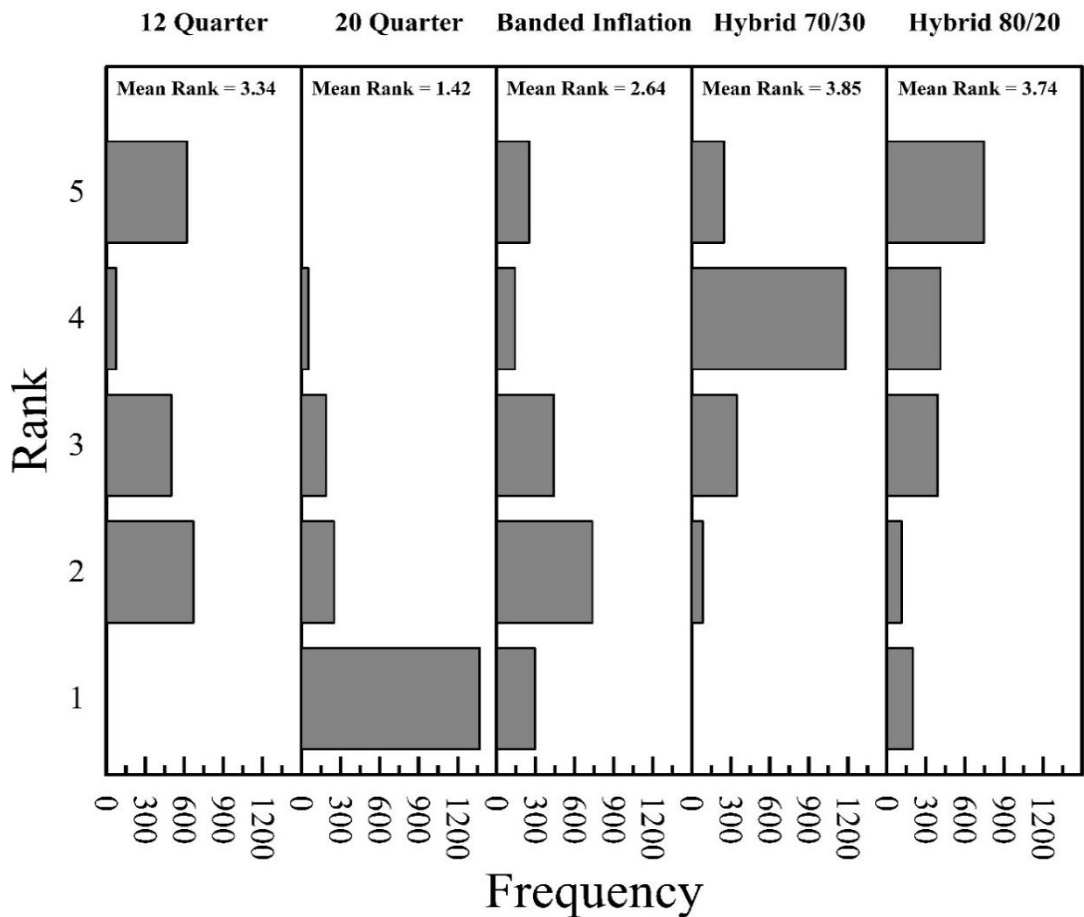
*Spending Allocation Protocol Pairwise Comparisons*

Sample 1–Sample 2	Mean rank difference	SE	z	p	Adj. p <sup>a</sup>
20QTR–BANDED	-1.213	0.052	-23.416	.000	.000
20QTR–12QTR	1.921	0.052	37.083	.000	.000
20QTR–HYB80/20	-2.320	0.052	-44.791	.000	.000
20QTR–HYB70/30	-2.428	0.052	-46.864	.000	.000
BANDED–12QTR	0.708	0.052	13.666	.000	.000
BANDED–HYB80/20	-1.107	0.052	-21.375	.000	.000
BANDED–HYB70/30	-1.215	0.052	-23.447	.000	.000
12QTR–HYB80/20	-0.399	0.052	-7.709	.000	.000
12QTR–HYB70/30	-0.507	0.052	-9.781	.000	.000
HYB80/20–HYB70/30	0.107	0.052	2.072	.038	.382

a. Significance values were adjusted by the Bonferroni correction for multiple tests.

**Figure 4**

*Risk Frequency Counts for Spending Allotment by Protocol*



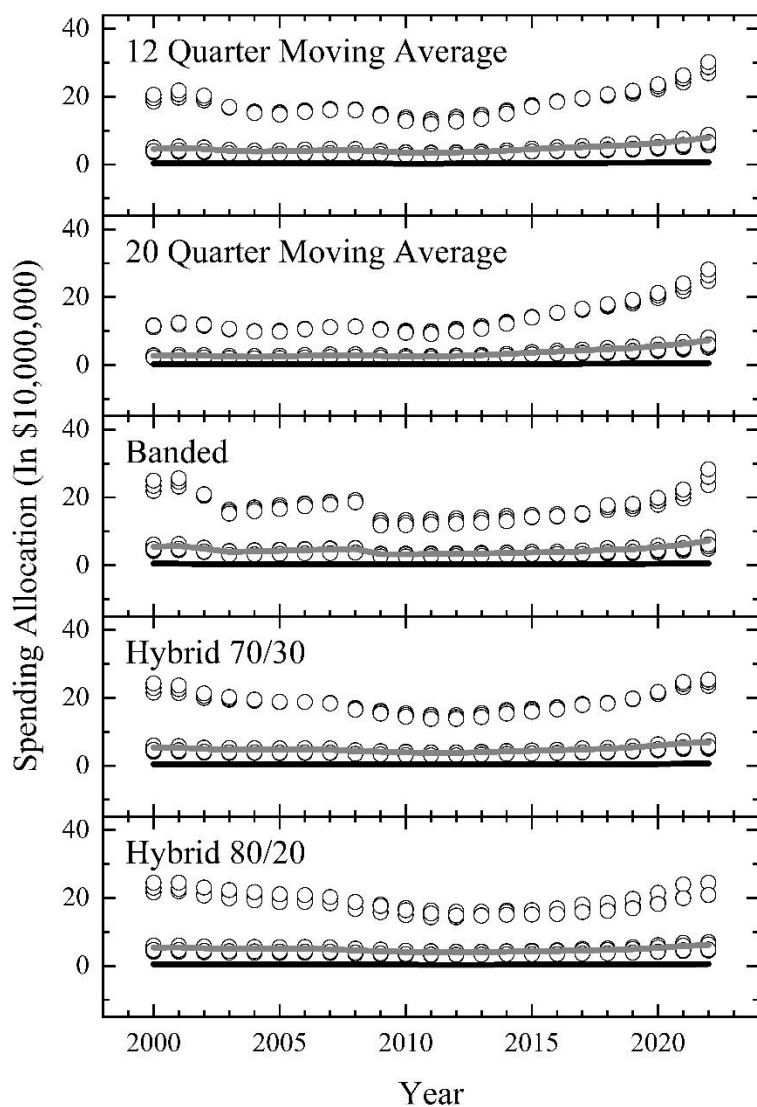
*Note.* The title above each panel labels the spending protocol for that panel. The highest rank (i.e., 5) represents the largest ending spending allotment.

The crux of the second research question was looking for consistency in the spending allocation amount from year to year. The two spending allocation protocols with the highest rank frequency count, regardless of overall rank and spending allocation strategy, were Rank 4 of the Hybrid 70/30 with a count of 1,180 and Rank 1 of the 20-quarter moving average with a count of

1,369. Despite the 20-quarter moving average strategy having the lowest ranking of 1, it had the largest frequency and proved to be the most consistent allocation method over the period studied, with the Hybrid 70/30 being the second most consistent. The annual spending calculation per spending protocol by year (see Figure 5) depicts the volatility in the spending allocations over time for each spending allocation strategy by connecting the modulating open circles, which represent the annual spending calculation. The two spending allocation strategies that appeared to have the least amount of volatility were the Hybrid 70/30 and Hybrid 80/20 strategies.

**Figure 5**

*Annual Spending Calculation per Spending Protocol by Year*



*Note.* The open circles represent the annual spending calculation for each institution for each year by spending allocation protocol, which is listed in the upper-left-hand corner of each panel. The black line in each panel represents the median spending amount per year and the gray line represents the median spending amount per year for the five institutions with the highest starting endowment values.

### **Synthesis of Analyses**

The findings for investment strategy analyses addressed the first research question: Which investment asset allocation philosophy and resulting investment performance provided the largest long-term endowment growth (i.e., largest endowment value) over the period of study? The 90/10 strategy produced the highest mean and median ending endowment values over the 22-year period that was modeled, but also had the largest variance (see Appendix A). The 80/20 strategy produced moderate mean, median, and variance values related to endowment value growth, and the 70/30 strategy produced the lowest mean, median, and variance values.

The findings for spending allocation protocol addressing the second research question (i.e., Which spending allocation strategy provided a consistent and reliable source of revenue on an annual basis over the period of study?) were less definitive than those for the investment strategies. However, two strategies (i.e., Hybrid 80/20 and Hybrid 70/30) had the largest mean ranks and the Hybrid 70/30 and 20-quarter moving average strategies had the largest frequency counts, signaling a consistent spending allocation amount for the years studied. I discuss these findings further in Chapter 5.

### **Summary**

I assessed the modeled endowment growth and spending allocation strategies to determine whether parametric statistical analysis (i.e., repeated measures ANOVA) was warranted. Based on these analyses, including the evaluation of extreme outliers on the distribution of the data, nonparametric procedures were necessary. Due to the repeated measures aspect of this study, the Friedman's two-way ANOVA by ranks test with planned post hoc comparisons was employed to analyze both the impact of investment strategy on endowment

growth and spending protocol on yearly drawdowns from the endowment. The investment outcomes revealed more aggressive strategies (i.e., 90/10) led to the largest growth of endowment value over time. The spending allocation strategy outcomes were less clear, but the most conservative approach (i.e., 20-quarter moving average) led to the least, but most consistent, amount of funds available for annual drawdowns because it contained the highest single count for any given rank, in this case, Rank 1. However, Rank 4 of the Hybrid 70/30 spending protocol also had a high rank count and warranted consideration.

## Chapter 5: Discussion

The purpose of this study was to determine the optimal spending allocation and investment portfolio strategies that provided a consistent source of alternative revenue through endowment funds for private 4-year higher education institutions. Specifically, I sought to answer the following research questions:

1. Which investment asset allocation philosophy and resulting investment performance provided the largest long-term endowment growth (i.e., largest endowment value) over the period of study?
2. Which spending allocation strategy provided a consistent and reliable source of revenue on an annual basis over the period of study?

Chapter 1 provided background information on the financing of higher education institutions with particular detail related to 4-year private higher education institutions, the opportunity associated with endowment funds related to overall institutional support, and the potential connected to optimization of endeavors associated with both investment and spending allocation strategy. Next, in Chapter 2, I reviewed the literature on endowment terminology, definitions and types of endowments, endowment management, institutional leadership and endowments, the history of endowments, endowment strategy consisting of endowment income and spending policies, areas of endowment support, impact of inflation on endowments, and U.S. market conditions. Chapter 3 provided information surrounding the methodology of this quantitative study, including research design; selected institutions; instrumentation; data collection, operationalization, and analysis; and data and study quality. Chapter 4 described the quantitative analyses performed, synthesized the findings, and provided a general summary of



the applicable outcomes. This last section, Chapter 5, discusses conclusions based on the overall findings, reflects on the findings, provides context related to the limitations of this study, reiterates the implications of theory and practice, and outlines the implications/opportunities for future research.

### **Conclusion of the Overall Findings**

Higher education leadership (e.g., board governance, investment committees, institutional executive leadership) should consider two main components related to endowments when determining the appropriate strategy: (a) endowment investment portfolio management and (b) spending allocation, or annual drawdown, calculation. Although many factors dictate the suitable strategy, the overall risk appetite and the risk and/or reward inclination of leadership helps solidify the preferred course of action. The institution's investment policy statement (IPS) helps outline institutional risk appetite by providing written guidance, including investment portfolio benchmarks, investment composition, rebalancing parameters, and annual spending allocation calculations. Careful articulation of these policies, including annual review, helps fulfill the board's fiduciary duty (Commonfund Institute, 2019, 2020).

### **Endowment Growth**

In relation to investment pool composition, the aim of this study was to determine which investment strategy provided the greatest long-term endowment growth. The modeling of various investment strategies over time that incorporated different weighting of equity securities and fixed-income compositions (i.e., 70/30, 80/20, and 90/10) over a 22-year period identified the more aggressive investment strategies tended to provide for the largest gains. Specifically, the 80/20 and 90/10 investment strategy models produced the largest ending endowment values,

with mean ranks of 2.20 and 2.11, respectively, despite the volatility in the Standard & Poor 500 (S&P 500) Index during the timeframe covered (see Figure 1).

Equations 1 and 2 (see Chapter 3) specified the various inputs in determining the endowment value, which included the following factors: contributions, investment earnings/returns, spending allocation, approved distributions in excess of the spending allocation, and management fees. For this study, only two of those five variables were modeled (i.e., investment earnings/returns and spending allocation). Table 8 presents a comparison of the modeled endowment values using the optimal investment strategy (i.e., 90/10) and spending allocation (i.e., Hybrid 70/30) based on the results of this study beside the reported endowment values reported in the 2022 National Association of College and University Business Officers and Teachers Insurance and Annuity Association of America (NACUBO-TIAA) Study of Endowments for three institutions (i.e., small beginning endowment value, midsize beginning endowment value, and large beginning endowment value). Although this comparison does not accurately represent the modeled results and the actual endowment events, it is interesting to see the modeled results for Macalester College resulted in a higher endowment value ending in 2022 than their reported value in the 2022 NACUBO-TIAA Study of Endowments. This finding suggests the overall investment strategy may be individualistic and does not follow a strict policy of rebalancing investment pool weights on an annual basis.

**Table 8**

*Comparison of Modeled Ending Endowment Value (Hybrid 70/30–90/10) to Reported*

*Endowment Value on the 2022 NACUBO-TIAA Study of Endowments (in \$1,000s)*

Institution	Endowment value: 2000 NACUBO-TIAA Study of Endowments	Endowment value: 2022 NACUBO-TIAA Study of Endowments	Modeled endowment value 2022 with Hybrid 70/30–90/10
College of St. Scholastica	17,061	102,960	39,396
Doane College	66,245	124,287	76,828
Macalester College	564,439	830,478	1,364,687

### Spending Protocols

Five spending allocation protocols, including the 12-quarter moving average, the 20-quarter moving average, banded inflation, Hybrid 70/30, and Hybrid 80/20, were modeled and reviewed to determine which produced the most stable (i.e., consistent and reliable) spending allotment. The spending allocation protocol results tended to be more nebulous than the investment strategy. The Hybrid 70/30 protocol produced the highest mean rank at 3.85, with the Hybrid 80/20 ranked fairly similarly with a mean rank of 3.74 (see Figure 4). Interestingly, the 12-quarter moving average, which is the most widely used strategy for higher education institutions, had only the third highest mean rank of 3.34.

Each entity's IPS and overall risk appetite can help an institution assess the best spending allocation methodology. Although the Hybrid 70/30 and Hybrid 80/20 strategies generated the largest mean ranks, the Hybrid 80/20 also had occurrences in all five rankings over the time period studied, which is indicative of higher variability in the annual spend amounts (see Figure 4). Because this study sought to answer the question of which spending allocation methodology

produced the most consistent and reliable annual allotment, a spending allocation methodology that produced the lowest variability may appeal to an institution that relies heavily on their annual endowment drawdown. Again, understanding the overall purpose of an institution's endowment strategy can help shape the appropriate spending allocation calculation.

### **Beginning Endowment Value**

Five institutions were identified as extreme outliers (i.e., Carleton College, Grinnell College, Macalester College, Saint Louis University, and Washington University) based on their endowment values in 2000. When modeled, all five of these institutions benefited most from the 12-quarter moving average spending protocols (see Figure 5) whereas remaining institutions benefited most from the Hybrid 70/30. Table 9 provides actual spending allocation data from the annual NACUBO-TIAA Study of Endowments for the five outlier institutions in the right-hand column with the modeled spending allocations for that same year for each spending strategy in the five preceding columns. When compared to the modeled data, which were based on the 90/10 investment strategy, it was evident that all five of these institutions benefited most when using the 12-quarter moving average strategy. The modeled trend in spending rank data for four of the five institutions followed their actual reported values. The notable exception was Macalester College, whose reported allocation differed most from that model. Macalester College's actual spending allocation methodology was a unique hybrid, which may have accounted for the trend in their results, deviating the most from that established by the model. Overall, these outlier institutions had the highest beginning endowment values, which suggests other institutions with similarly large endowments may benefit more from employing a spending allocation strategy that differs from colleges and universities with more modest endowment values.

**Table 9**

*Reported Spend on the Institutional Form 990 for 2020 for the Five Outlier Institutions and Modeled Spend With 90/10 Investment Strategy for 2020 for all Spending Allocations Studied (in \$1,000s)*

Institution	Modeled spending with 90/10 investment strategy for 2020					Reported spend on 2020 Form 990
	12-quarter moving average	20-quarter moving average	Banded inflation	Hybrid 70/30	Hybrid 80/20	
Washington University	236,129	212,652	198,774	217,329	182,212	410,349
Saint Louis University	51,782	46,351	44,883	48,814	42,167	60,318
Grinnell College	64,967	58,113	57,237	60,700	51,620	87,612
Carleton College	30,428	27,332	26,341	28,601	24,718	45,177
Macalester College	67,516	60,462	57,919	63,217	54,148	37,147

### Discussion

Endowment gifts support an institution in many meaningful ways through scholarships to students, resources for innovative projects, funding capital projects, endowed faculty positions, and many more endeavors. Endowments can help provide financial stability to higher education institutions and proper alignment of endowment investment strategy along with the spending allocation protocols with institutional investment goals, spending needs, and risk appetite in mind, which is part of this infrastructure. Having the appropriate endowment strategy is crucial for private 4-year institutions that have low faculty-to-student ratios that encourage civil discourse and creative problem solving because these faculty-to-student ratios result in increased economic pressures; higher operating costs; and greater competition for attracting students, faculty, and staff (Chessman et al., 2017). In a 2019 survey of college presidents, 14% indicated “they could see their own college closing or merging in the next five years” (HelioCampus,

2023a, p. 2). This statistic is staggering and provides a context for long-term financial stability and sustainability. Although all higher education institutions place reliance on their endowments, smaller, private institutions have an increased risk of financial instability. By looking at the finances of a small, private 4-year institution, I discuss my findings in relation to my personal experience with managing endowment funds and the overall finances of a higher education institution.

### **Alternative Revenue Opportunities**

Endowments can provide alternative revenue opportunities to alleviate financial pressures by growing the overall endowment value by implementing the right investment strategy for the institution. Many smaller, private 4-year institutions heavily discount tuition through institutional scholarships to attract students and remain competitive. When endowment funds can be directed toward student scholarships, other institutional funds can then be directed toward other operating costs and opportunities. Thus, to help free traditional revenue sources, endowment growth is essential.

### **Endowment Growth**

There are a variety of ways to grow the endowment investment pool, from reinvesting annual operating surpluses and designating them as quasiendowments to realizing an endowment investment strategy that performs better than the spending allocation (e.g., S&P 500 annual return rate of 18% compared to a spending allocation that allows up to 5% of earnings) to new endowment-directed gift campaigns. All these actions can help to grow the long-term endowment pool and protect against market downturns. A long-term investment strategy must

consider a variety of market conditions, including steep downturns (i.e., bear markets) or upswings (i.e., bull markets).

### **Bear Market Conditions**

Bear market conditions, or a market downswing of 20% or more over at least a 2-month period, can cause havoc on a private 4-year institution with a modest endowment (Wohlner, 2023). Table 10 provides modeled data for a 4-year private institution in Iowa that had a beginning endowment value of approximately \$60 million in 1995. Analyzing the three bear markets (i.e., the dot com bubble, the global financial crisis, and the COVID-19 global pandemic) shows the direct impact on the endowment value and the calculated spend for the 80/20 investment strategy and the Hybrid 70/30 spending allocation. The calculated spending allocation dropped nearly \$1.2 million between 2001 and 2004 from \$4,943,412 to \$3,718,402. For a small institution with a \$30 million operating budget, a 3% swing can be devastating. On the flip side, when a bull market prevails, institutions recognize higher investment returns.

**Table 10**

*Impact of Market Conditions on Endowment Value and Spending Allocation for the 80/20 Investment Strategy and the Hybrid 70/30 Spending Allocation*

Year	Total endowment value for spending allocation in \$	Calculated spending allocation or drawdown in \$	Ending endowment value in \$	Market condition (bear vs. bull)	Historical event
2000	84,899,837	5,446,439	79,453,399	Bull	
2001	60,143,668	4,943,412	55,200,255	Bull	
2002	42,208,407	4,218,089	37,990,319	Bear	Dot com bubble
2003	50,289,319	3,831,014	46,458,306	Bear	Dot com bubble
2004	61,067,696	3,718,402	57,349,294	Bull	
2005	67,869,207	3,727,638	64,141,569	Bull	
2006	69,647,531	3,781,917	65,865,614	Bull	
2007	62,102,382	3,650,356	58,452,026	Bull	
2008	38,193,163	3,232,912	34,960,252	Bear	Global financial crisis
2009	41,156,298	2,950,537	38,205,761	Bear	Global financial crisis
2010	44,584,886	2,742,411	41,842,475	Bull	
2011	42,656,871	2,594,095	40,062,776	Bull	
2012	40,332,218	2,464,431	37,867,787	Bull	
2013	49,108,055	2,494,499	46,613,556	Bull	
2014	51,409,556	2,571,423	48,838,132	Bull	
2015	48,113,264	2,555,895	45,557,369	Bull	
2016	40,800,199	2,429,756	38,370,443	Bull	
2017	41,826,937	2,358,848	39,468,089	Bull	
2018	36,927,613	2,256,295	34,671,318	Bull	
2019	42,926,395	2,251,732	40,674,663	Bull	
2020	45,418,600	2,314,235	43,104,366	Bear	COVID-19 global pandemic
2021	58,041,887	2,511,652	55,530,234	Bull	
2022	59,277,728	2,747,537	56,530,191	Bull	

*Note.* Data are from “Bull and Bear Markets Over Time,” by Vanguard, 2024 (<https://www.vanguard.co.uk/content/dam/intl/europe/documents/en/bear-and-bull-chart-uk-en.pdf>). In the public domain.



### **Bull Market Conditions**

For private 4-year institutions, bull market conditions, or a market upswing of 20% or more over at least a 2-month period, can provide additional revenue (Wohlner, 2023). Table 10 showed the direct impact on the endowment value and the calculated spend for the 80/20 investment strategy and the Hybrid 70/30 spending allocation as the result of bull market conditions. The calculated spend increased by \$63,515 between 2004 and 2006, from \$3,718,402 to \$3,781,917. For endowment funds designated as scholarships, such an increase could impact students' lives. Endowment funds can have lasting positive results in many ways. From the aforementioned examples, the potential power that endowment funds have to impact these institutions is evident. Understanding the ebbs and flows of market conditions and the resultant effects on the endowment value is essential for long-term financial planning.

### **Long-Term Financial Planning**

Higher education leadership, as stewards of the institution's assets, "must maintain equity between generations . . . so that the strength of financial and physical assets carries on from current to [the] future" (Townsend, 2009, p. 101). Therefore, having the requisite understanding of institutional finances is essential for effective stewardship. Although many components relate to higher education finances, developing a long-term financial strategy related to endowment funds can help supplant potential changes in the market, as discussed previously. Considering a longer financial horizon of 5–10 years and accounting for institutional needs allows for robust planning. In addition, these planning and forecasting pursuits need to involve a variety of stakeholders, from board members to institutional leaders and even students.

As part of their fiduciary duty, board members approve annual budgets and may even set specific parameters. Students, both actively and passively, possess information that can help an institution plan for the long term. Understanding student higher education institutional selection decisions, including institutional activities and resources preferences, can assist with long-term planning, especially if this plan includes adding to capital assets (e.g., updates to a student center, technology in the classroom). Institutional leadership can garner feedback from their teams related to changes in their operations that will require operating budget resources. For example, they can examine if there is a new program the institution would like to offer, or can inquire about necessary faculty, technology, and support staff resources, just to name a few areas. By devising a long-term financial plan, the institution can garner the necessary resources from a variety of sources, including endowment funds.

The development office holds a crucial role in long-term financial plans. Development officers possess information on the donor base and can help match institutional objectives with donors and potential donors who may want to help fund an innovative project. In addition, the development office needs to be a part of the budget and strategic planning discussions. This active involvement will help with devising and implementing fundraising campaigns. Additionally, through their stewardship reporting processes, the development office reports how gift funds have been used and donors can see how their gifts have supported the institution.

Many inputs are involved in preparing both an annual budget and long-term financial planning. Yet, despite all the careful planning, surprises might arise. For example, if the institution did not meet its enrollment projections, resulting in a deviation from the planned revenue projection, the campus can examine alternatives measures that may need to be taken,

such as exploring what expenses can be cut or alternative revenue sources. An institution may be able to use unrestricted endowment funds, or quasiendowment funds with board approval, to help make up for this shortfall. The reasons underlying the shortfall must be understood and the potential ramifications must be explored. By performing multiyear planning that includes a range of operating budget inputs, an institution can weather turbulent conditions better.

Structuring endowment growth endeavors, such as new fundraising campaigns, to align with the strategic priorities of an institution and donor interests can help with long-term planning and financial stability. Endowment funds are part of this equation. The institution has a duty to ensure that donor funds, including endowment funds, are managed prudently. By growing the institutional endowment and implementing the appropriate spending protocols, donor funds can offer repeated positive returns.

### **Limitations**

The aim of any quantitative study is to quantify data. Quantitative research “allows generalisations of the results by measuring the . . . sample population” (Chetty, 2016, para. 1). As part of the quantitative research process, “acknowledging limitations also allows other researchers to understand how the research could be redesigned” (Abron, 2019, p. 140). The major limitations to this study related to the following areas: a focus only on private 4-year higher education institutions, the modest number of institutions included, mitigating the impact of active versus passive investment advisors, limiting the investment and spending protocols to the most common types used, and the impact of the specific investment and inflationary indexes employed.

### **Private 4-Year Higher Education Institutions**

This study used publicly available information for 27 private 4-year higher education institutions located in the Higher Education Price Index (HEPI) West North Central region, comprising the following states: Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, and South Dakota (Commonfund Institute, 2013, 2021, 2022). Despite having different funding models, I would expect public institutions to track similarly because their investment and endowment strategies are largely consistent to those of private institutions. But, this assumption would need to be tested.

### **Number of Institutions**

This study modeled and examined the endowment investment and spending allocations for 27 institutions, which was a relatively small sample size; thus, the results may not be representative of the entire 4-year private higher education landscape. In addition, a limited number of institutions started with higher endowment values and the data (see Figures 2 and 4) suggested the strategies that maximize their performance may differ from those of institutions with more modest endowment values.

### **Active Versus Passive Investment Advisors**

This study did not consider any potential differences that may have arisen from an institution employing financial advisors (i.e., active) versus contracting outside of the institution (i.e., passive) for these services. Internal financial advisors would be intimately aware of their individual investment portfolio and the long-term needs of the institution. Typically, institutions with their own internal investment team have extremely large endowments. Contracting investment services may be ideal for smaller endowment institutions that do not have the

resources to employ such specialists. Information related to internal versus external financial advisors may be difficult to obtain from publicly available sources, and the resources required to obtain this information were beyond the scope of this study.

### **Additional Investment and Spending Protocols**

In this study, I modeled simplistic investment strategies (i.e., 70/30, 80/20, and 90/10) and some of the most common spending allocation calculations (i.e., 12-quarter moving average, 20-quarter moving average, banded inflation, Hybrid 70/30, and Hybrid 80/20). For investment strategies, not every institution invests in equity securities and fixed-income mechanisms. In reality, some institutions invest in real estate, international securities, private equity, and other avenues. Investment strategies can be complex and multifaceted, and this study simplified investment weighting strategy into two categories: equity versus fixed income. In a similar manner, the five spending allocation protocols employed in this study tend to be those most commonly used, but other protocols exist. For example, St. Olaf College (2023) employed a spending allotment protocol that targeted 4%–5% of the 16-quarter moving average. Further, Macalester College's (n.d.-a) distribution policy was equivalent to the following:

Fifty percent of the allowable draw per unit of the previous year, increased by 2.0%; plus fifty percent of the long-term draw rate of 5.0% applied to the 16 quarter market value average of the endowment unit value for the period ending November 30 of the fiscal year preceding the budget year. (para. 9)

Thus, institutions have different manners in which to calculate their annual spending allocation.

These avenues could be investigated in future research projects.

## **Investment and Inflationary Indexes**

Numerous investment and inflationary indexes could be considered when conducting endowment modeling. For this study, I used the S&P 500 Index to model earnings for equity securities and the Bloomberg Barclays's Aggregate Bond Index for fixed-income returns. These indexes were chosen based on consultation with a certified financial advisor who specialized in higher education institutional investment portfolios (P. Hager, personal communication, January 8 and June 1, 2023). Other investment indexes could be modeled for future studies. In addition, I used the HEPI West North Central region for private 4-year institutions in this study. Other regions of HEPI could be modeled or even other inflationary indexes might be employed, such as the Consumer Price Index.

## **Limitations Summary**

I addressed five areas of research limitations in this study: (a) private 4-year higher education institutions, (b) number of institutions, (c) active versus passive investment advisors, (d) additional investment and spending protocols, and (e) investment and inflationary indexes. Although every research study has limitations, acknowledging the limitations and addressing them in future research helps to grow the body of practice and research.

## **Implications for Practice**

The results of this study have implications for future practice. Both growing endowment funds and stabilizing spending allocation protocols can strengthen the overall institutional financial management approaches implemented by private 4-year higher education institutions. Addressing key areas of endowment management assists with both endowment growth and

spend, such as understanding risk tolerance, acceptance of endowment gifts, donor stewardship, and an annual review process of the IPS.

### **Risk Tolerance**

Every higher education institution adopts a certain level of risk they are willing to take when making decisions. In relation to endowment investment management, the risk appetite of the institution may have a direct impact on endowment returns. In this study, a more aggressive endowment investment strategy (i.e., 90/10 where 90% of the endowment pool is invested in equity securities and 10% is allocated to fixed-income instruments) tended to result in greater returns. However, all investment strategy methods modeled showed positive returns over the period studied. A fiscally conservative institution might adopt a less aggressive strategy because it fits better in their risk tolerance limits. Being able to articulate the institutional purpose for endowment funds provides a roadmap for both the investment and spending strategies and the risk tolerance of a given institution guides which of these strategies they might employ.

### **Acceptance of Endowment Gifts**

There is typically a minimum donation requirement to establish an endowment fund. Endowment gifts are usually considered a “major gift amount for the organization; \$25,000 is a common minimum” (Fillmore, 2023, para. 3). Fillmore (2023) further stated that “a carefully managed endowment program offers . . . prestige, because it sends donors and prospects the message that you’re a fiscally responsible organization looking to ensure its future” (para. 4). Donors can direct their gifts to specific purposes, and it is important for all parties to understand the following about donors:

[You] have the right to direct a gift for any purpose you find compelling. . . . The college does not have to accept your money. The college has the duty to accept only those gifts that will contribute to the mission of the college. In practice, this means that intelligent giving involves evaluation on both sides. (Neal & Poliakoff, 2011, p. 13)

Thus, donors can direct their funds to specific purposes and institutions have the ability to accept or reject the donation. Having a gift agreement, signed by both the donor and recipient, that outlines the purpose of the donation helps give clarity to donor intent (Neal & Poliakoff, 2011).

### **Donor Stewardship**

Cultivating large gifts often takes time, sometimes many years, and the relationship between the donor and the institution does not stop at gift acceptance. Stewardship is an ongoing process involving reports to the donor on how the gift funds are being used. According to philanthropist Frank Weil, for long-term success in fundraising, gift recipients “should help donors ensure that the terms of their gifts are thought through carefully—and that they are documented. Providing genuine stewardship is a real asset to the long-term success in fundraising” (Neal & Poliakoff, 2011, p. 33). Periodically, acknowledging the benefits of an endowed gift can garner additional gifts and opportunities in the future. Although donor stewardship is important, an equally important type of stewardship rests with the board of trustees and institutional management through its IPS.

### **IPS**

According to the Commonfund Institute (2019), an institution’s IPS should have the following qualities:



[The IPS] should be specific, embodying in concrete terms the best thinking of the board . . . about the investment pool, its goals and purposes, but also it needs to be sufficiently flexible to guide the board through environments that may be very different from those prevailing at the time of its adoption. (p. 6)

In practice, IPSs are reviewed on a periodic basis, typically annually, by the board investment or finance committee. This process includes five key areas of review: (a) endowment investment portfolio return targets, (b) spending (e.g., formula and rate), (c) investment pool composition, (d) risk management, and (e) liquidity. Reviewing these components of the IPS in relation to actual performances ensures an appropriate level of endowment fund oversight.

### **Implications for Practice Summary**

Active endowment management processes can assist with both endowment growth and consistent spending. Although a variety of implications for practice related to this study, the four key takeaways were (a) understanding risk tolerance, (b) acceptance of endowment gifts, (c) donor stewardship, and (d) annual review of the IPS. In combination with implications for practice, research findings can inform endowment fund management approaches, including those aimed at endowment growth and spending stability.

### **Implications for Research**

Due to the limitations of this study, as discussed previously, I provide several recommendations for future research opportunities to expand on this body of work. Future research opportunities include exploration of additional variables, performance of stratification testing based on endowment size, application across institution type, examination of endowment composition, and consideration of alternative modeling.

### **Relationships of Variables**

The initial data point used in this study was the beginning endowment value of each institution, as reported on the annual NACUBO-TIAA Study of Endowments in 2000. From this data point, both endowment investment performance and spending allocation protocols were modeled. An opportunity for future research would be to consider relationships with other variables such as operating revenue, operating expense, enrollment, scholarships, and/or Composite Financial Index. Much of this information is readily available from public sources such as the Integrated Postsecondary Education Data System (IPEDS), Internal Revenue Service (IRS) Form 990s, and the Department of Education. Performing a panel regression analysis considering these variables would expand the body of work.

### **Stratification Testing**

Because this study modeled endowment growth and spending allocation protocols for 27 private 4-year institutions with varying beginning endowment values, there is an opportunity to add stratification to a larger sample and perform further analyses. Analyzing endowment growth and spending calculations based on endowment value for high-, mid-, and low-range institutions would add a more comprehensive understanding of the effects of such strategies across various institutions and endowment sizes.

### **Applicability Across Institution Type**

This study focused on 4-year private higher education institutions in the HEPI West North Central region by ranking endowment growth and spending allocation using a Friedman's two-way analysis of variance (ANOVA) by ranks test with planned post hoc comparisons. Expanding on this study and focusing on and comparing different types of institutions such as

super ivies, small privates, regionals, historically Black colleges and universities (HBCUs), and super publics using the same analytical approach may produce a different outcome.

### **Endowment Composition**

Another opportunity for further research would be to explore institutional endowment composition among the various endowment types. On the institutional IRS Form 990, Schedule D, the estimated composition of the endowment value is reported as a percentage of the total value. Specifically, in Part V: Endowment Funds, Lines 2 a to c, of the institution's submitted IRS Form 990, the "estimated percentage of the current year end balance (line 1g, column (a)) held as: Board designated or quasi endowment, Permanent endowment, and Term endowment" (U.S. Department of Treasury, Internal Revenue Service, 2023, Lines 2 a to c). Including endowment composition in future research could help provide information related to the flexibility of an institution's endowment fund growth and spending strategies.

### **Practical Modeling**

The initial data point used in modeling was the beginning endowment value reported on the annual NACUBO-TIAA Study of Endowments in 2000. Consideration was not given to other endowment activities that could have increased or decreased the endowment value. Areas that can impact an endowment value include contributions, administrative expenses, and additional drawdowns in excess of the spending allocation, with board approval. Including these inputs in a study could influence the outcomes and it would prove interesting to see how this inclusion may change an institution's approach to which investment and spending strategies they adopt.

### **Implications for Research Summary**

Expanding on this study, future research opportunities should include exploration of additional variables, performance of stratification testing based on endowment size, application across institution type, examination of endowment composition, and consideration of alternative modeling. By understanding the intricacies of endowment funds better and expanding on the body of research, higher education leaders are armed with practical information to assist with making decisions that benefit all consumers of higher education resources.

### **Chapter Summary**

One aim of this study was to determine the endowment investment strategy that provided the greatest growth, resulting in the largest ending endowment value in 2022. The results from modeling three investment strategies (i.e., 70/30, 80/20, and 90/10) indicated the more aggressive investment strategies tended to provide the largest ending endowment value for the period studied. The other aim was to examine which spending allocation protocols produced the most stable drawdown over the study period. Five spending allocation strategies were modeled (i.e., 12-quarter moving average, 20-quarter moving average, banded inflation, Hybrid 70/30, and Hybrid 80/20). The spending allocation strategy results were more nebulous in that the mean ranks of the top three ranked strategies were within 0.51 of each other with the Hybrid 70/30 protocol producing the highest mean rank at 3.85, with Hybrid 80/20 and 12-quarter moving average protocols following closely behind with mean ranks of 3.74 and 3.34, respectively. Interestingly, the five modeled institutions with the largest beginning endowment value appeared to benefit the most from an annual spending allotment using the 12-quarter moving average

and/or the 20-quarter moving average, whereas institutions with more modest endowments may find greater benefit from employing the Hybrid 70/30 strategy.

Endowment gifts support an institution in many meaningful ways, and adopting the appropriate endowment strategy is crucial for private 4-year institutions. Consideration of a variety of strategy components must be taken into account including alternative revenue opportunities, endowment growth, market conditions (e.g., bear and bull markets), and long-term financial planning.

As with any study, this study had potential limitations. These limitations can be addressed in future studies. The major limitations related to this study were (a) using only data from private 4-year higher education institutions, (b) a modest number of institutions, (c) the impact of active versus passive investment advisors, (d) limiting the number of investment and spending protocols to only commonly employed strategies, and (e) the selection of investment and inflationary indexes.

Although this study included a variety of implications for practice and future research, the four key takeaways related to practice included (a) understanding risk tolerance, (b) acceptance of endowment gifts, (c) donor stewardship, and (d) the annual review process employed with respect to IPS. In combination with implications for practice, research findings added to the approaches an institution might consider for endowment fund management, including endowment growth and spending stability. Future research opportunities include (a) exploration of additional variables, (b) performance of stratification testing based on endowment size, (c) application across institution type, (d) examination of endowment composition, and (e) consideration of alternative modeling. These and other subsequent studies afford higher

education institutions the means by which to select endowment investment and spend strategies that will provide important revenue to an institution in the near and long term.

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## Appendix A: Descriptive Statistics for Investment and Spending Model Outcome Data

**Table A1**

*Descriptive Statistics for Investment Strategy*

Investment strategy	Statistic type	Bounds	Value	SE
70/30	Mean		338008698.492	13715388.851
	95% confidence interval for mean	Lower	311116544.131	
		Upper	364900852.852	
	5% trimmed mean		198152655.972	
	Median		82359849.262	
	Variance		584087422604584000.000	
	Std. Deviation		764256123.695	
	Minimum		9223.372	
	Maximum		9959139805.968	
	Range		9951826146.889	
	Interquartile range		187781292.585	
	Skewness		4.997	0.044
Kurtosis		32.337	0.088	
80/20	Mean		390167805.227	17676084.899
	95% confidence Interval for Mean	Lower	355509801.086	
		Upper	424825809.368	
	5% Trimmed Mean		221262517.318	
	Median		93643950.593	
	Variance		970138549697835000.000	
	Std. Deviation		984956115.620	
	Minimum		9223.372	
	Maximum		18445804539.887	
	Range		18439283381.606	
	Interquartile Range		218792883.941	
	Skewness		7.476	0.044
Kurtosis		87.086	0.088	
90/10	Mean		462899202.012	22363379.853
	95% Confidence Interval for Mean	Lower	419050684.878	
		Upper	506747719.146	
	5% Trimmed Mean		256825184.731	
	Median		107908805.943	
	Variance		1552874955035350000.000	
	Std. Deviation		1246144034.627	
	Minimum		9223.372	
	Maximum		20518721882.474	
	Range		20513076814.226	
Interquartile Range		272431368.004		
Skewness		7.828	0.044	

Investment strategy	Statistic type	Bounds	Value	SE
	Kurtosis		86.554	0.088

**Table A2***Descriptive Statistics for Spending Allocation Protocol*

Spending allocation strategy	Statistic type	Bounds	Value	SE
12 QTR	Mean		20971282.818	9223.372
	95% Confidence Interval for Mean	Lower	18623255.250	
		Upper	23319310.385	
	5% Trimmed Mean		11883042.377	
	Median		9223.372	
	Variance		2670288993711420.000	
	Std. Deviation		51674839.078	
	Minimum		9223.372	
	Maximum		813513033.645	
	Range		813184068.147	
	Interquartile Range		11677127.131	
	Skewness		6.696	0.057
	Kurtosis		66.300	0.113
20 QTR	Mean		16002033.411	9223.372
	95% Confidence Interval for Mean	Lower	14221094.423	
		Upper	17782972.399	
	5% Trimmed Mean		9223.372	
	Median		9223.372	
	Variance		1536207798837930.000	
	Std. Deviation		39194486.842	
	Minimum		9223.372	
	Maximum		504550015.561	
	Range		504352636.261	
	Interquartile Range		9223.372	
	Skewness		6.033	0.057
	Kurtosis		48.542	0.113
BANDED INFLATION	Mean		15663802.959	9223.372
	95% Confidence Interval for Mean	Lower	14113663.171	
		Upper	17213942.747	
	5% Trimmed Mean		9223.372	
	Median		9223.372	
	Variance		1163840884980820.000	
	Std. Deviation		34115112.267	
Minimum		9223.372		

Spending allocation strategy	Statistic type	Bounds	Value	SE
	Maximum		283358994.568	
	Range		283019636.573	
	Interquartile Range		9223.372	
	Skewness		4.323	0.057
	Kurtosis		20.563	0.113
	Mean		16954585.543	9223.372
	95% Confidence Interval for Mean	Lower	15302503.326	
		Upper	18606667.760	
	5% Trimmed Mean		10222930.440	
	Median		9223.372	
	Variance		1321950506267830.000	
HYB 70/30	Std. Deviation		36358637.299	
	Minimum		9223.372	
	Maximum		253837249.375	
	Range		253426380.818	
	Interquartile Range		9223.372	
	Skewness		4.122	0.057
	Kurtosis		17.937	0.113
	Mean		16998364.185	9223.372
	95% Confidence Interval for Mean	Lower	15344409.731	
		Upper	18652318.639	
	5% Trimmed Mean		10288652.072	
	Median		9223.372	
	Variance		1324948428570940.000	
HYB 80/20	Std. Deviation		36399841.051	
	Minimum		9223.372	
	Maximum		245501744.267	
	Range		245095554.880	
	Interquartile Range		9223.372	
	Skewness		4.103	0.057
	Kurtosis		17.642	0.113

**Appendix B: Institutional Review Board Approval**

Swenson, Candace M

To: Constantineau Ries, Tressa

Cc: McCullar, Steven L

Fri 11/17/2023 1:56 PM

Hi Tressa,

This email is in regards to an IRB protocol you submitted for a project titled “Not so Hidden Secret of Endowment”. It has been determined that the protocol does not involve human subjects and further review by the IRB is not needed. We do appreciate you submitting it to ensure the protection of human subjects.

Please let me know if you have any questions.

Kind Regards,

*Candy Swenson*

Administrative Director/IRB Administrator

Research and Graduate Education

Administrative Services 101

XXX.XXX.XXXX

xxxxx@stcloudstate.edu

<https://www.stcloudstate.edu/rsp/default.aspx>

<https://www.stcloudstate.edu/irb/default.aspx>

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