

**Financing University Conference Centers:
A Multiple Case Study Approach**

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Abstract

The Co-Alignment Principle is a strategic management framework that guides value-added management. The model suggests that firms will perform successfully if they scan the environment for forces driving change and allocate their resources to industry-leading competitive methods that address environmental trends. When financing and managing a capital project, a firm's managers must think strategically and consider the "four pillars" of project valuation and management: (1) estimating future cash flows over the project's life cycle, (2) determining an appropriate cost of capital/rate of return, (3) assessing and managing operational and financial risk, and (4) investing in the appropriate materials and resources. The four pillars of project valuation and management act as a framework to guide this investigation on university conference center financing. The overall research question of this study asks how university officials make conference center investment decisions based on the four pillars of project valuation and management.

To answer the research questions posed by this investigation, this study adopted a multiple case study approach, in which officials at five universities were interviewed about their universities' conference center projects. Interviews with two executive-level personnel at each university along with multiple sources of written documentation provided the basis for conclusions.

Evidence from the data collection phase of this project indicates that universities follow similar procedures for financing their conference centers. For instance, they take advantage of low-cost, tax-exempt debt and private contributions to fund these capital projects. In addition, they place little emphasis on sensitivity analyses for cash flow projections and ignore the opportunity costs of capital. University conference center financing practices with respect to the four pillars of project valuation and management are not consistent with the recommendations set forth by traditional financial principles. This study concludes that universities should improve their strategic thinking and pay more attention to the four pillars in order to increase the viability of their conference center businesses.

Dedication

I wish to dedicate this work to my family and friends, who always have recognized and praised my academic abilities. My parents, Harold and Elise Blacka, have always kept their door open to me and have loved me generously. At the same time, they have encouraged me to “broaden my horizons” beyond their home. They never have seen a limit to my academic or professional abilities.

My best friend and husband, Brian Doyle, was an important source of levity throughout my thesis process. Whenever I felt overwhelmed or exhausted from the reading, interviewing, or writing, he provided ample encouragement and humor. Like my parents, Brian encourages me to test my boundaries and believes in my abilities.

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One: Introduction

INTRODUCTION

In the first quarter of 2001, the Commonwealth of Virginia “is facing a structural impasse on the composition of the various budgets and competing priorities for revenue” (C. W. Steger, personal communication, March 2, 2001). As a result, Governor James S. Gilmore, III announced several belt-tightening measures on February 26, 2001, which included a freeze on general fund capital outlay expenditures (J. S. Gilmore, personal communication, February 26, 2001 and February 27, 2001). Further, he directed state university officials to implement a freeze on capital projects. This situation provides an illustration of the balancing act that many higher education facilities planners and financial managers face: meeting the need for building renovations with ever-shrinking budgets (Sockwell, 1993).

As competition for state funds increases among government agencies and programs, university officials will need to either scale down their capital improvement projects or investigate alternative sources of financial capital (Hennigan, 1995; Stainback, 2000). Stainback (2000) explains:

Over the last 25 years or so, ...university...officials have begun to realize that the traditional methods of financing and delivering needed facilities and catalytic commercial projects may not always be the most effective methods. Previously, there was increasing pressure to reduce the amount of public funds required to finance the desired buildings and redevelopment areas...[This pressure was] compounded by the taxpayer revolt of the 1980s and 1990s.

Prior to the 1980s, public officials simply raised taxes or created new taxes in order to finance new government projects (Stainback, 2000). Colleges and universities either received sufficient state appropriations for new facilities or financed their capital projects with a combination of cash reserves, gifts, and tax-exempt debt (Hennigan, 1995). However, in the early 1980s, states slowed their capital project appropriations in response to taxpayer resistance (Stainback, 2000). At the same time, demand for state-of-the-art science and technology facilities and building maintenance requirements intensified universities' capital needs. Both public and private universities had difficulty raising the capital they required to finance their facility projects (Hennigan, 1995). Thus, government officials earnestly started investigating alternative ways, including debt service, to finance and deliver services and facilities (Stainback, 2000).

In the future, public university systems, because of competing demands from vital state services for operating funds, will be forced to rely on proceeds from the sale of state general obligation bonds, state appropriation bonds, or university revenue bonds to fund future facilities projects (Hennigan, 1995). Further, the growing demand for fiscal accountability will require university officials to justify their investment expenditures and control their capital costs. In order to make the most responsible investments in a particular facility, university officials must carefully predict the effective life span of the

investment, accurately estimate future cash flows from the facility, manage financial and operational risk, and minimize the cost of capital.

Context of study

The context of this study is residential conference centers affiliated with American universities or colleges. According to the International Association of Conference Centers (IACC) and PKF Consulting (1998), nearly one-quarter (24.1%) of the nation's conference centers are classified as college/university conference centers. These conference centers tend to be smaller than executive, resort, or corporate conference centers, averaging 58 overnight guest rooms and ten meeting rooms. In most cases, these conference centers are developed to fulfill the demand for lodging or meeting facilities on college or university campuses. In fact, over two-thirds (67.5%) of college/university conference center room occupancy is attributed to conference attendees while the remainder (32.5%) is attributed to social or transient guests.

In addition to providing necessary meeting and lodging facilities on college and university campuses, college/university conference centers possess the potential to yield several social and financial benefits. First, university conference centers can revitalize and increase economic returns on assets that otherwise may have remained idle. Further, the conference centers have the ability to generate both non-tax income and tax revenue. Non-tax income may come from land lease payments or from a percentage of the facility's operating proceeds. Tax revenues may come from the property taxes of commercially developed land or leaseholds or from other applicable taxes like hotel occupancy and sales taxes. Additionally, projects that create jobs increase employees' personal incomes, therefore increasing income tax revenues.

While university conference center projects yield financial and functional benefits, they also have the ability to facilitate educational gains. For instance, several universities across the country offer hospitality programs whose curricula are integrated with their on-campus hotel, restaurant, or conference facilities. Students in these programs can gain valuable work experience in a realistic workplace environment.

Despite the advantages to opening a conference center, many public universities and private colleges/universities that are interested in developing hotels or conference centers do not possess the financial capital to invest in such projects. In addition, state budgets discourage capital improvement projects. Thus, university officials must finance their projects with various sources and combinations of debt and equity that range from federal grants to government bonds to private equity. For instance, in 1997, the University of Cincinnati avoided requesting money from the state budget by obtaining debt financing from a bank (Selingo, 1997). In contrast, the Louisiana State Bond Commission gave preliminary approval in July 1999 to \$8 million in authority bonds for Louisiana State University to spend on construction of a hotel and conference center on its Baton Rouge campus (Anderson, 1999). More recently, in October 2000, the city of Oak Ridge, Tennessee received a \$1 million federal grant to help fund a science and

technology conference center. This conference center likely will be built on the city's downtown Oak Ridge University campus (Fowler, 2000).

Problem statement

The capacity of university or college officials to obtain financing for a conference center development largely depends on their ability to value and manage the future project. Valuing and managing the project encompasses (1) estimating future cash flows over the project's life cycle, (2) determining an appropriate cost of financial capital, (3) assessing and managing operational and financial risk, and (4) investing in the appropriate materials and resources. Unfortunately, the body of knowledge regarding the valuation and project management of university conference centers is underdeveloped in both academic and trade literature. With the growing fiscal responsibilities being placed on university officials, accessible information and knowledge regarding the valuation and development of college/university capital projects is urgent. This study explores the state of project valuation and management and adds to the body of knowledge regarding university conference centers.

THEORETICAL UNDERPINNINGS

The basic goal behind any investment decision is to create value for the investors. In the case of college/university projects, investors might include debt holders (bondholders or banks), debt issuers (the state or university), equity investors (donors, alumni), and faculty or students (whose tuition and fees might go toward financing projects). Creating value for investors means investing in assets or projects that are worth more than they cost. Essentially, the difference between a project's value and its cost is known as its *net present value*. An organization's managers can maximize the organization's value by investing in assets or projects that constitute a positive net present value (Brealey, Myers, & Marcus, 1999; Ross, Westerfield, & Jordan, 2000).

Discounted Cash Flow analysis

Investment decisions (also known as *capital budgeting decisions*) often are made using Discounted Cash Flow (DCF) valuation (Brealey, et al., 1999; Copeland, Koller, & Murrin, 1996; Ross, et al., 2000). DCF analysis involves forecasting future cash flows and calculating their present value at a rate that reflects the riskiness of the cash flows. By subtracting the amount of the initial investment from the present value of future cash flows, a manager can arrive at an estimate of the investment's net present value:

$$\text{Net Present Value} = \sum_{t=1}^n [(\text{Future Value of Cash Flows}_t) \div (1+r)^t] - \text{Initial investment},$$

where r = the appropriate interest rate (also known as discount rate) used to compute the present value of future cash flows. This rate takes into account the time value of money and the riskiness of the investment.
and n = time; the number of periods representing the effective life span of the investment

From the paucity of academic and trade literature on university conference center development, the extent to which university officials use discounted cash flow analysis with the net present value decision rule to make investments regarding conference centers, if they use it at all, is unclear. However, the traditional objectives of higher education: teaching, research, and public service (Davie & Duncombe, 1972; Kaiser, 1995) often conflict with financial principles. All college and university planning decisions involve subjective discretion and institutional values (Hopkins & Massy, 1981), which do not fit into the discounted cash flow model. Massy (1995) writes, “Institutions that do not have endowments must often base their decisions on *economics* rather than *academics* [emphasis added]. Institutions with endowments can weigh academic priorities more strongly,” suggesting that economic priorities and academic priorities inherently differ.

Research structure: The Four Pillars of Project Valuation and Management

The purpose of this study was to examine the extent to which university officials use the discounted cash flow/net present value model to make investment decisions regarding conference center development projects. The primary outcome was a framework of the valuation and management process that university officials employ in the development of conference centers. The “Four Pillars” of project valuation and management, encompassing the components of the discounted cash flow/net present value approach, became the structure that guided the investigation. A brief narration of the Four Pillars in this section is followed by a more-detailed discussion in Chapter Two.

The Four Pillars of Project Valuation and Management:

- Estimate cash flows over life cycle of project
- Determine the project’s cost of capital
- Identify and manage risk issues
- The investment(s)

Pillar One: Estimate cash flows over the life cycle of the project

Life cycle concept

In the corporate world and in the university/college setting, investments have finite lives (Olsen, West, & Tse, 1998). The life cycle of an investment begins with its inception, moves through a phase of growth, then reaches maturity. Following maturity, the investment may decline or become obsolete. Unlike human life spans, however, an organization's managers can extend the life cycle of an investment with future-oriented planning and management.

Cash flows, timing, and operational risk

Underlying every strategic capital investment is the expectation of a desired return, which offsets inflation and compensates the investor for risk. The phenomenon of inflation often is related to the *time value of money*, suggesting that a dollar today is worth more than a dollar in the future. Because of the time value of money, an investor is better off by receiving a dollar today and placing it in an investment (like a savings account) than she is by receiving the dollar tomorrow and foregoing the investment returns. This concept also implies that an investor would rather have high returns early, rather than late, in the investment life cycle.

The variance in cash flows over the life cycle of a particular investment is termed its *operational risk*. A large variation in cash flows results in a high-risk investment, which requires higher returns by investors. Managers can assess this operational risk by researching their organization's competitive position in its industry and forecasting future cash flows accurately.

Link to Net Present Value formula

Pillar One, estimating cash flows over the life cycle of the investment, is related to the Net Present Value formula in several ways. First, the estimation of cash flows goes directly into the *present value of cash flows* and *initial investment* components of the formula. The operational risk involved in the cash flows is captured in the projected variance in cash flows. The estimated length of the investment's life is encompassed in the superscript t , which is the number of periods used to discount the cash flow. The relationship between Pillar One and the Net Present Value formula is summarized in Table 1.1.

Table 1.1. Relationships among the Four Pillars of project valuation and management and the Net Present Value Formula.

Pillar	Description	Relation to NPV Formula
One	Estimate cash flows over life cycle of project	<ul style="list-style-type: none"> • Number of periods (t), • Future value of cash flows • Initial investment
Two	Determine cost of capital	<ul style="list-style-type: none"> • Discount rate (r), • Debt/equity mix (structure)
Three	Identify and manage risk issues	<ul style="list-style-type: none"> • Accuracy of cash flow projections (forecasting risk), • Debt/equity mix (financial leverage), • Fixed/variable cost mix (operating leverage), • Discount rate (r)
Four	The investment	Cash flow projections, Life cycle of investment (t)

Pillar Two: Determine the project's cost of capital

In the most basic sense, a project's cost of capital is the rate of return it must produce in order to offset inflation and provide an adequate rate of return to investors for the risk that they incur. This cost of capital is often referred to as the *hurdle rate* or *discount rate* that the investment must achieve. In many cases, organizations estimate their cost of capital as a weighted-average cost of debt and equity. This *Weighted-Average Cost of Capital (WACC)* reflects the financial structure of the organization, that is, the mix of debt and equity that the organization uses to finance its investments. Determining the project's cost of capital goes hand-in-hand with assessing and managing risk issues, which is Pillar Three of the project valuation and management framework.

Link to Net Present Value formula

As Table 1.1 shows, Pillar Two, determining the project's cost of capital, is reflected in the discount rate (r) of the Net Present Value formula. This discount rate, often calculated as a weighted-average cost of debt and equity, represents the project's capital structure as well.

Pillar Three: Identify and manage risk issues

As mentioned earlier, *risk* is the variance in cash flows associated with a particular investment. Investments with large cash flow variance are considered to be high-risk investments, while investments with small cash flow variance are considered to be low-risk investments. Risk-averse investors require compensation for the risks accompanying investments that result in additional cash flow variance. This need for compensation is reflected in investors' required rates of return and, thus, in the organization's cost of capital. The organization's financial managers must constantly identify and manage risk issues in order to determine and reduce the organization's cost of capital.

Link to Net Present Value formula

Like Pillar Two, Pillar Three, identifying and managing risk issues, is represented by the discount rate (r) in the Net Present Value formula. This discount rate reflects a risk-free rate of return as well as a risk premium placed on the project's cost of capital. The discount rate takes into account financial leverage issues, while the structure and accuracy of cash flow projections consider operating leverage and forecasting risk. These relationships are summarized in Table 1.1.

Pillar Four: The investment

Developing a project involves two strategic decisions: the financing decision and the investment decision. Basically, the financing decision determines how to raise the money to pay for real assets (Brealey, et al., 1999). This decision involves obtaining debt and equity capital to achieve an appropriate capital structure and selecting a suitable risk management strategy. This decision is represented in Pillars Two and Three of the project valuation and management framework. The investment decision, also known as the capital budgeting decision, establishes which real assets the organization should acquire (Brealey, et al., 1999). During this decision, the organization's managers determine the design and engineering requirements of a facility, evaluate the life and quality of potential investment materials, and ascertain the capital outlay required for the investment.

Link to Net Present Value formula

Actions taken during the investment decision (Pillar Four) are reflected in the cash flow projections (*future value of cash flows, initial investment*) and the life cycle of the investment (t) of the Net Present Value calculation. When doing research on the appropriate materials and processes to use in project development, the organization's managers will determine the effective life span of project materials and estimate how much capital outlay the project will require. This relationship is shown briefly in Table 1.1.

Research framework

The Four Pillars of project valuation and management were chosen as a research framework because they represent the actions and decisions involved in doing a comprehensive discounted cash flow/net present value project analysis. Prior to this study, the extent to which university planners use this type of framework in conference center development decisions was not known. Nevertheless, anecdotal evidence (Hennigan, 1995; Stainback, 2000) suggests that university officials will need to become conversant on these principles in order to obtain funding for their facility projects.

Research questions

The foregoing discussion lays the groundwork for this investigation, reflecting that the purpose of this investigation was to explore the nature of conference center financing and investment decisions among America's colleges and universities. To guide the direction of this study, several research questions were established:

Overall research question: How do university officials make conference center investment decisions based on the four pillars of project valuation and management?

Research question 1: How do university officials estimate the future cash flows of their conference center investments?

Research question 2: How do university officials determine an appropriate cost of capital for conference center projects?

Research question 3: How do university officials identify and manage risk issues with regard to developing conference centers?

Research question 4: How do university officials determine the appropriate investments in materials and other resources when developing conference center projects?

METHODOLOGY AND PROCEDURE

To answer the research questions posed by this study, the investigation followed a multiple-case study format, in which officials at five universities were interviewed about their universities' conference center projects. Two people at each university were interviewed. Exceptions include University A, where three people were interviewed and University C, where only one person was interviewed. In addition, written documents like feasibility studies, requests for proposals, and pro forma financial statements were collected from each university to give the researcher a complete understanding of the

dynamics of each university's conference center financing decisions. More information about the methodology used and the participants involved in this study appear in Chapter Three of this document.

Selection of cases

The universities chosen for participation in this study were selected for their proximity to Virginia Tech. Each of the five universities, representing both the private sector and the public sector, is located within a 300-mile radius of Blacksburg, Virginia. The case studies represent hotel conference centers located in rural, suburban, and urban areas. All of the participating university hotel conference centers are considered residential conference centers; that is, they all have lodging facilities on site. However, their operational structures vary from self-operation to external management without a flag to external management with a flag.

Reliability and validity

Reliability and validity in research design allow the researcher and the reader to put faith in a study's results and conclusions (Kerlinger, 1965). To insure reliability of results, this study developed a case study protocol and a case study database (Yin, 1994). Further, to promote validity, the study used multiple sources of evidence, developed a chain of evidence, and employed replication logic in the selection of cases (Yin, 1994). Greater discussion on reliability and validity appears in Chapter Three, the methodology section of this document.

LIMITATIONS

The primary threats to the validity and reliability of this study are related to time and money constraints. Supported by limited resources, the study investigated the financing decisions of university conference centers located within a day's drive of Blacksburg, Virginia. While the five universities included in the study were able to satisfy theoretical and literal replication logic, other potentially interesting universities outside a 300-mile radius were not included. Additional limitations include those inherent to case study research: no basis for statistical generalization, volumes of information, respondent bias, and researcher bias. A detailed discussion of this study's limitations appears in Chapter Five of this report.

SUMMARY

When college or university leaders decide to develop a residential conference center to fulfill a demand for meeting and lodging space on campus, to meet the organization's need for continuing education facilities, or for some other reason, they must value and manage the project in a way that garners support and gains funding. They

need to examine four distinct components of the conference center project: (1) cash flow forecasts, (2) cost of capital, (3) risk, and (4) investment materials. In this study, these four components are referred to as the Four Pillars of project valuation and management.

As the next chapter will show, the contemporary nature of conference center development on college and university campuses in the United States has fostered very little research or other writing on the subject. Thus, any research done on the topic at this time must take an exploratory approach. An exploratory study can employ a number of research designs including experiments, surveys, archival analyses, or case studies (Yin, 1994) to answer the investigator's research questions. However, only the case study design is equipped to address the complex, evolving nature of college and university financial decision-making processes. Following a literature review in Chapter Two, Chapter Three provides additional support for the case study method and presents working details on this study's research design. Chapter Four exposes the results of the multiple-case study, while Chapter Five concludes with discussion of the results and recommendations for application and future research.

Two: Literature Review

INTRODUCTION

Without direct evidence documenting college or university conference center development decisions, this study must surmise certain relationships based on several loosely related bodies of knowledge. Drawing from strategic management, corporate finance, public finance, and public administration literature, this chapter establishes the applicability of the four-pillar research framework to college and university conference center investment decisions. However, because this research is exploratory, the study does not hypothesize any specific responses expected from interviews or document analyses.

This investigation seeks to uncover the important factors that college and university officials examine when considering residential conference center investments. The factors, conversations, and decisions regarding conference center development are highly contextual. This means that the decisions may vary from the corporate sector to the government sector, from private colleges to public universities, and from institution to institution. Again, with little literature regarding college or university conference center investment decisions from which to draw, this study relied on several other related bodies of knowledge to guide the investigation. Those bodies of literature dealt primarily with the private sector, but represented the public sector somewhat. Therefore, it is important to note the differences between private sector financial decisions and public sector financial decisions. First, the missions or goals guiding public institutions often differ from those guiding private firms. While private firms generally are guided by financial or economic strategies, public institutions frequently are guided by service-oriented goals. This inherently makes the financial orientations of the two sectors vastly different. Second, the avenues available to each sector for raising capital funds vary somewhat. Because of certain tax exemptions, public sector institutions often can raise funds at a lower cost of capital than private companies. However, because they do not sell equity securities, public institutions raise non-debt capital in ways private organizations do not. For instance, public organizations can accept charitable donations to the advantage of the donor whereas private companies cannot. Therefore, the capital structures and capital costs of private institutions and public institutions can be very different. Because academia encompasses both public and private institutions, these financial issues apply to colleges and universities.

THEORETICAL UNDERPINNINGS

With the different financial issues between public institutions and private firms in mind, the following literature review draws from strategic management, corporate finance, public finance, and public administration literature to establish a theoretical framework for this study. The discussion begins with the Co-Alignment Principle, a strategic management model geared primarily toward private corporations. Nonetheless,

the way in which the Co-Alignment model fits together with discounted cash flow analysis and the four-pillar valuation and management framework makes it applicable to the public sector as well.

Following an introduction of the Co-Alignment model, the discussion illustrates how organizations can translate strategic principles into value through value drivers and discounted cash flow analysis. Finally, the literature review describes the components making up each pillar of project valuation and management and details the concepts and variables captured in this study.

Co-Alignment Principle

As mentioned in Chapter One, the basic goal behind any investment decision is to create and manage value for the organization. Creating and managing value requires strategic management, which is the organization's ability to align itself properly with forces driving change in the environment in which it competes. This alignment requires management to invest in strategies (also known as *competitive methods*) that yield the greatest financial value to the organization. To do this, an organization must set up a capital structure that allocates resources efficiently to the competitive methods that add the most value over time. When managers correctly identify environmental trends, develop competitive methods to address those trends, and allocate resources effectively to the competitive methods, then the organization's performance will reflect its co-alignment. Figure x shows the relationship between *Environmental Events*, *Strategy Choice*, *Organization Structure*, and *Organization Performance*.

Strategic management begins with an effective environmental scanning program. Environmental scanning is the process of gathering and synthesizing information about environmental forces driving change. This scanning effort uncovers opportunities and threats in the environment as well as identifies the critical success factors, or minimum levels of performance that the organization must achieve in order to survive in its industry. While achieving the critical success factors, the organization must develop leading competitive methods to maintain a competitive position in the industry. Each competitive method is a portfolio of products and services that, in combination, add value to the organization. In order to maintain successful competitive methods, the organization must invest in unique resources known as core competencies that are difficult for other firms to imitate. Together with investment in peripheral competencies, investment in core competencies makes up the organization structure. The organization structure represents the allocation of resources to competitive methods identified as a result of the environmental scanning effort. Managers can measure the effectiveness of their strategies and the extent of their co-alignment by variables that reflect firm performance. Known as value drivers, these variables constitute observable measures of organization value.

Translating competitive strategy into financial value

In a competitive environment, creating and managing value for an organization requires more than just investing in assets, projects, or competitive methods that are worth more than they cost. In order to maximize firm performance, managers must invest in those things that constitute the highest net present value for the organization. By using a strategic management framework like the Co-Alignment Principle, managers can learn how to translate environmental scanning work into financial value.

So far, the discussion in this chapter has focused on the use of the Co-Alignment Principle as a vehicle to create and manage value for an organization. The term *value* has been mentioned in a financial context, but has not been clearly defined to this point. As a concept, *financial value* is synonymous with *net present value*, which was introduced in Chapter One. Essentially, the net present value of an investment is the difference between its discounted future cash flows and its initial cost. The concept of net present value can be applied to any entity or thing that produces cash flows. Therefore, a firm has a net present value, an asset has a net present value, a competitive method has a net present value, a project has a net present value, and so on. The act of estimating the value of something is known as *valuing* it; the process of estimating its value is the *valuation and management* process.

Before moving on, it is important to note that, in this document, *value* means *financial value* or *net present value*. However, financial value is not always the only value that a thing possesses. This idea becomes extremely apparent for most people when they attempt to clean out their attics or garages. Very often, the old, “cruddy” stuff they find cluttering up their storage space are things they feel a need to keep, not for their financial benefits, but for their sentimental value. In these situations, the sentimental value of things often outweighs their financial value. The net present value formula is quite limited in its dealings with things that possess intangible values in addition to their financial values. While theorists are working on models to quantify intangible values like sentimental value, emotional value, and educational value, those models will not be included formally in this research framework. However, this study does recognize that, particularly in the college or university environment, managers must consider a host of intangible, un-quantifiable benefits and costs when making investment decisions.

Value drivers: Linking qualitative goals to quantitative measurements

Because of its complex nature, an organization cannot act directly on *value*. Therefore, it must act on variables that it can influence, known as *value drivers*. Understanding how value drivers impact the value of the organization is essential for several reasons. First, decision-makers cannot affect the value of the business directly; therefore, they must act on the variables that influence value, such as customer satisfaction, capital expenditures, or cost of capital. Second, through understanding value drivers, managers learn to understand the entire organization and to communicate their expectations about performance (Copeland, et al., 1996). An organization may choose from among a host of value drivers on which to concentrate. Examples of value drivers

include cash flow per share, earnings per share, return on assets, return on investment, customer service (Olsen et al., 1998); value growth duration, sales growth, operating profit margin, income tax rate, working capital investment, fixed capital investment, cost of capital (Rappaport, 1998); return on invested capital, net operating profit less adjusted taxes, free cash flow, and economic profit (Copeland et al., 1996).

Identifying key value drivers, according to Copeland and colleagues (1996), is a creative process that relies on trial and error. Mechanical approaches based on existing information and purely financial approaches rarely identify the true key value drivers. Nonetheless, the practice of identifying value drivers is quite developed in the corporate sector (much more so than in the public sector), yielding a substantial amount of information on the subject. The value drivers briefly listed in the preceding paragraph are variables that have been identified by researchers and practitioners in the private sector. As the reader can see, this list is rather extensive.

Value drivers are categorized into two types: external value drivers and internal value drivers. External value drivers are those variables in the environment (external to the organization) that the organization cannot influence, but that affect the organization's value. Internal value drivers are those variables affecting value that the organization can influence directly. For instance, in the quick service food industry, the cost of beef is an value driver- it is a variable that influences each company's "bottom line." However, because individual companies are not able to control the cost of beef, it is an external value driver. On the other hand, the price each company charges for a hamburger is an internal value driver, because it is a variable that each company can control.

Business experts identify value drivers that impact nearly every organization. Examples of external value drivers include income tax rate, labor costs, and other input costs. Examples of internal value drivers include operating profit margin, working capital investment, forecast duration (Rappaport, 1998); return on invested capital, free cash flow, economic profit (Copeland, et al., 1996); cash flow per share, return on assets, return on investment, and customer service (Olsen, et al., 1998). The cost of capital acts like an external value driver and an internal value driver because it comprises both controllable (actual returns, risk features of the organization) and uncontrollable (required rate of return, risk features of the market) components.

Unfortunately, little has been articulated regarding value drivers for the public sector. In theory, senior administrators in the college or university environment should understand the university's operating context and communicate their performance expectations based on value drivers. Thus, the value drivers must be developed and articulated down to the level of detail that aligns each value driver with decision variables directly under the control of lower-level managers (Copeland, et al., 1996). However, little literature or instruction guides this way of thinking in the university sector. With the tri-partite mission of teaching, research, and outreach, educational institutions have seemed to address value drivers that measure those goals. Traditional value drivers are new knowledge creation, student body growth, outreach program growth, faculty output, or continuing education. Nonetheless, in today's economic environment, modern

colleges and universities will need to begin addressing financial value drivers like free cash flow and cost of capital *in addition to* and *in concert with* the traditional value drivers.

Translating value drivers into value: A framework for valuing investments

Luehrman (1997b) indicates that the way an organization estimates and manages value is a critical determinant of how it allocates its resources. Allocation of resources to competitive methods, as illustrated by the Co-Alignment Principle, is a key driver of the company's overall value (Luehrman, 1997b; Olsen, et al., 1998). Ultimately, DCF analysis, with its resultant net present value figure, guides the organization's strategy choice and resource allocation. In the most basic use of the net present value calculation, an organization will consider investing in one project or strategy. Management will use NPV as the criterion to invest or not. If the calculated NPV is greater than zero, they will go ahead with the investment. If the NPV is less than or equal to zero, they will choose not to invest in the project. However, in a more-comprehensive net present value analysis, the organization will consider several investment options and choose the investment with the greatest net present value. In either case, the DCF/NPV analysis is the criterion employed to select a particular strategy.

As mentioned in Chapter One, discounted cash flow valuation involves forecasting future cash flows and calculating their present value at a rate that reflects the riskiness of the cash flows (Brealey, et al., 1999; Copeland, et al., 1996; Ross, et al., 2000). By subtracting the amount of the initial investment from the present value of future cash flows, a manager can arrive at an estimate of the investment's net present value. A reprise of the net present value formula follows:

Net Present Value = Future Value of Cash Flows \div $(1+r)^t$ – Initial investment,
where r = the appropriate interest rate (also known as discount rate) used to compute the present value of future cash flows. This rate takes into account the time value of money and the riskiness of the investment.
and t = time; the number of periods representing the effective life span of the investment

Discounted cash flow analysis spans all four steps of the Co-Alignment strategic management model. In order to estimate future cash flows accurately over the life of an investment, management must understand the forces that drive change for the organization. This comprehension follows an extensive environmental scanning effort, which reduces operational and financial risk. With sophisticated knowledge of the environment and the organization, management can predict accurately the effects of environmental forces on operations, reducing the potential variation in future cash flows. Moreover, management's comprehensive awareness of the organization's context and its confidence in future cash flow streams will decrease debt and equity investors' perception of risk, reducing their required returns. This effects a lower hurdle rate and cost of capital (" r " in the Net Present Value formula) for the organization.

According to Copeland, et al. (1996), the appropriate “discount rate applied to free cash flow should reflect the opportunity cost to all the capital providers weighted by their relative contribution to the company’s total capital.” This *Weighted-Average Cost of Capital (WACC)* reflects an organization’s debt/equity mix. The relative proportion of debt and equity is referred to in the Co-Alignment model as the *organization structure* or *capital structure*. The capital structure is manifested in the discount rate (“*r*”) used to calculate net present value in the discounted cash flow analysis. In fact, many organizations use the Weighted-Average Cost of Capital value as the discount rate. The WACC formula is (Ross, et al., 2000):

$$WACC = R_d(1-T_c)(D/V) + R_e(E/V),$$

where R_d = required return on debt;
 T_c = corporate tax rate;
 D = the organization’s market value of debt (market price per bond times the number of bonds outstanding);
 R_e = required return on equity;
 E = the organization’s market value of equity (number of shares outstanding times the price per share);
and V = the combined market value of debt and equity ($E + D$)

Perhaps one of the hardest elements of the WACC formula to estimate is the required return on equity. The Capital Asset Pricing Model (CAPM), depicted subsequently, attempts to quantify the cost of equity (Ross, et al., 2000).

Capital Asset Pricing Model:

$$E(R_i) = R_f + [E(R_m) - R_f](b_i)$$

where $E(R_i)$ = future expected return on the risky investment i ;
 R_f = the risk-free rate of return, which captures the pure time value of money.
This rate represents the returns to be received without taking on any risk;
 $[E(R_m) - R_f]$ = the market risk premium, which is the reward for bearing the systematic risk presented by the equity market;
and b_i = the beta coefficient, which measures the risk premium placed on investment i .
Beta is the amount of systematic risk present in investment i relative to that present in an average risky asset.

The Capital Asset Pricing Model is an equation that primarily directs the valuation and management of corporate assets. However, it illustrates the enormous influence that risk has on the cost of equity in both the private and public sectors. Not only does the “risk-free” rate incorporate inflation risk, but the market risk premium and the beta coefficient also embody systematic risk. Understanding the organization’s competitive operating environment and investing in value-adding competitive methods can reduce risk in all forms. Managers must fully grasp the relationship between environmental scanning and risk, as risk perception penetrates and influences the entire strategic management process.

The “Four Pillars” of valuation and management as a discounted cash flow framework

In Chapter One, the discussion of *theoretical underpinnings* guiding this study briefly described the “Four Pillars” of project valuation and management and connected them to the Discounted Cash Flow/Net Present Value analysis approach to project valuation and management. The bulk of the current chapter disaggregates the components of each pillar and discusses each component in detail. It is important for the reader to recognize several things about the four pillars of project valuation and management. First, the four pillars constitute a framework within which capital budgeting decision-makers can operate. Despite the apparent simplicity of the framework, the strategic planning process is extremely complex. Every estimate, calculation, and decision made during the planning process involves uncertainty and skill. Further, the four-pillar framework is not a step-by-step recipe that, if followed in sequence, will guarantee strategic success. Even though the pillars are listed here as four distinct components of the capital budgeting process, they must be approached simultaneously, rather than separately or sequentially. Finally, while mentioned primarily as the four pillars of *project* valuation and management, this framework is not limited to valuing and managing projects. It can be applied to anything that has financial value: projects, assets, firms, and competitive methods, to name a few.

The foundation underlying all four pillars is the *environmental scanning* process, which results in an understanding of the organization’s operating environment. By scanning and understanding environmental events, the organization’s managers will exhibit less uncertainty about the future. The environmental scanning effort may even allow them to “predict” future events to an extent. The greater their understanding of the environment is, the more accurate their cash flow projections, the lower their risk, and the smaller their cost of capital will be.

Environmental events in the university conference center industry

Recent years have seen intense development in the university conference center industry. The demand for meeting facilities by faculty, continuing education departments, and other organizations has fueled the need for lodging and meeting space on university campuses. Colleges and universities have become prime targets for conference center development because they often possess precious land and adaptive buildings and they frequently have the ability to obtain relatively inexpensive development funding. In the last few years, several national hotel chains (Hilton, Doubletree, Marriott, Sodexo, and Benchmark) have recognized the benefits of partnering with colleges and universities and have begun targeting them for conference center development. This trend has resulted in endless permutations of ownership and management structures (D. A. Smith, personal communication, March 24, 2001):

- Ownership and operation by college/university (called “self-operation”)
- Ownership by college/university, operation by external company
- Variations:
 - University operates hotel, external company operates conference center

- External company owns and operates hotel adjacent to self-operated university conference center.

The choice between external and internal management of a conference center is an emotional one for universities. External management represents a new culture and loss of operational control for the university. However, higher operating costs for the public sector and lack of core competencies in conference center operation often influence university officials to opt for external management. Nevertheless, that type of decision is backed by some sort of understanding of the university's needs within an environmental context. The better the environmental scanning process is, the more appropriate those decisions will be.

The Four Pillars of Project Valuation and Management:

1. Estimate cash flows over life cycle of project
2. Determine the project's cost of capital
3. Identify and manage risk issues
4. The investment(s)

Pillar One: Estimate cash flows over the life cycle of the project

The first pillar of project valuation, *estimating cash flows over the life cycle of the project*, encompasses several concepts in addition to cash flow forecasting and life cycle determination. First of all, the life span of an investment and its corresponding cash flows are directly related to the organization's *competitive position* in its industry. Its competitive position depends on its ability to scan the environment, achieve industry *critical success factors*, and invest in industry-leading competitive methods. With a strong competitive position, the organization will be able to sustain positive cash flows for a longer life than a firm with a weaker competitive position will. Thus, the quality of cash flow forecasts and *expected value* analyses are dependent upon managers' ability to assess the organization's competitive position in the industry. Each of the components of Pillar One mentioned here are listed in the following dialog box and explained further throughout this section.

Pillar One Components

- Competitive position
- Critical success factors
- Life cycle
- Cash flow forecast
- Expected value analysis

Competitive position

Quite simply, an organization's *competitive position* refers to its performance relative to other organizations in its industry and segment. In order to maintain a position with competitive advantage, the organization must develop unique skills and resources that allow it to build competitive methods that are better than its competitors' products and services. When the organization is able to prevent competitors from duplicating its competitive methods easily, it has achieved sustainable competitive advantage (Olsen et al., 1998). Competitive advantages can come from providing superior value to the customer through a combination of product price and quality characteristics, achieving lower costs than competitors, and/or utilizing capital more productively than competitors (Copeland, et al., 1996).

Without the dynamics of competitive advantage, organizations would need to provide returns only equal to their cost of capital (Copeland, et al., 1996). This might seem to be the case among American colleges and universities whose competition occurs more in the academic realm than in the financial realm. However, with the increasing mobility of financial capital across geographic and temporal borders, today's colleges and universities will find themselves competing in rapidly changing financial markets (Hennigan, 1995). This will require them to add financial goals to their traditional missions.

Critical success factors

The way in which an individual organization within any industry addresses its internal and external value drivers will determine its success in the market. Individual organizations may create different strategy formulas to address the same value drivers. However, there are certain minimum standards that each organization must achieve in order to remain in the industry. Those minimum standards are known as *critical success factors*. For example, in the hotel industry, each hotel must provide a certain amount and level of amenities in its rooms. A bed (or two); a telephone, a television; and a clean bathroom with running water, toilet, shower/bathtub, and sink are critical success factors for hotels- all hotel rooms must have them. Further, those items must be clean and in good repair. The skills, resources, and processes that each hotel develops to achieve those critical success factors are known as *peripheral competencies*. However, the extent to which a hotel can develop *unique* skills, resources, and processes known as *core competencies* to make its critical success factors better than its competitors' may constitute a competitive advantage. For instance, Four Points has attempted to transform its hotels' pillows, a critical success factor, into a competitive advantage by offering larger pillows. The company appeals to its target market by suggesting in its advertisements that its customers need large pillows because they are smarter (and, therefore, have larger heads) than the average traveler.

Critical success factors in any industry essentially represent fixed cost investments for each organization. Because each critical success factor constitutes a necessary, minimum level of investment, the expenses associated with it act as "sunk"

costs. Further, since critical success factors do not produce any competitive advantage, they do not generate additional, incremental cash flows. Acting as fixed investments, critical success factors work to increase the operating leverage of an organization. In a mature industry (like the hospitality industry) characterized by a relatively large number of critical success factors, finding competitive methods that sustain high incremental cash flows over a long life span is difficult.

Literature on critical success factors of university conference centers is virtually non-existent. One of the goals of this project is to discover what those critical success factors are.

Life cycle

According to the Co-Alignment Principle, “if firms are to continue to add value, management must understand the concept of life cycle” (Olsen et al., 1998). Shown pictorially in Figure 2.1, this concept suggests that organizations, competitive methods, and assets have finite lives. The life cycle begins with the inception of an asset, competitive method, or organization and moves through the growth phase to maturity. Following maturity, the entity may decline or become obsolete. Unlike human life spans, however, organization managers can extend the life cycles of these entities with future-oriented planning and management. This requires identifying significant forces in the environment driving change for the organization and allocating resources to competitive methods that align the organization with those forces driving change.

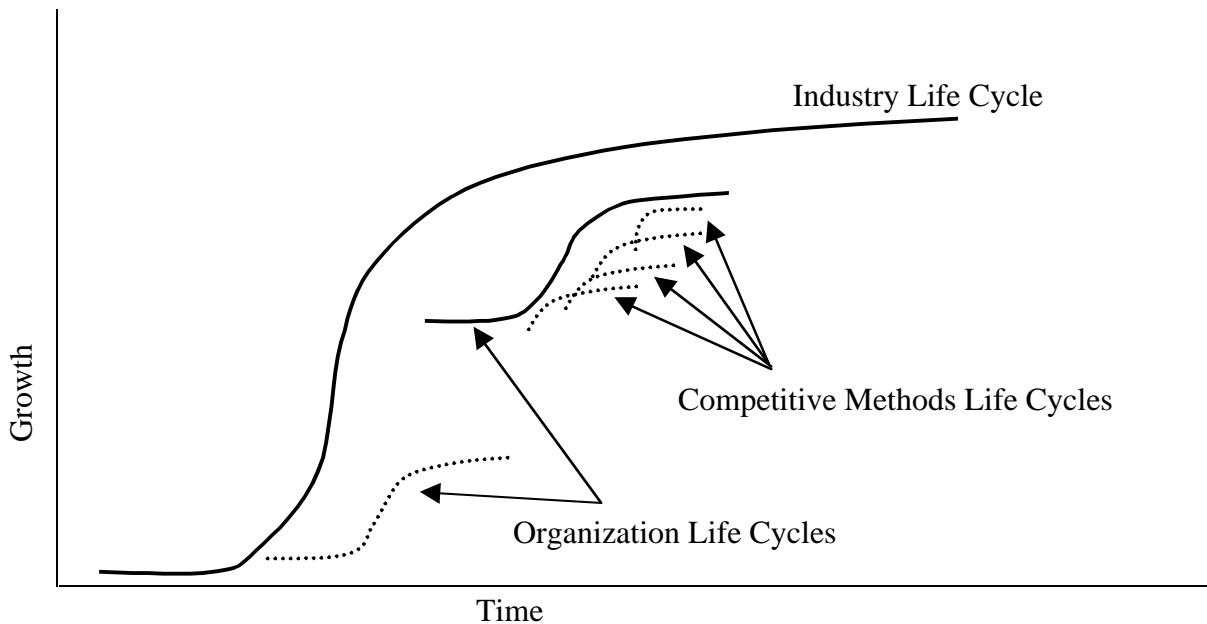


Figure 2.1. Industry, organization, and competitive methods life cycles. Adapted from Olsen, West, and Tse, 1998.

When considering an investment, an organization's managers first must estimate the effective life span of the investment and then must forecast cash flows over the investment's life. A common approach to this task is to make the forecast period as long as sustainable rates of return above the organization's cost of capital are expected. The terminal horizon of the life span estimate is the point at which the cash flows reach a steady state or act like a perpetuity (Copeland, et al., 1996; Leuhrman, 1997a; Rappaport, 1998).

Cash flow forecasts and expected value analyses

The traditional introductory Finance textbook discusses most of the concepts presented in this chapter. Amid discussions of risk and returns, the typical textbook introduces, explains, and makes operational the net present value approach to the discounted cash flow methodology. At the introductory level, the student is furnished with the appropriate numbers to "plug in" to the net present value formula. Outside the academic environment, however, the former student must learn how to estimate periodic cash flows and the appropriate discount rate. Because the cash flow forecaster must predict and manage these values in an uncertain environment, his/or projections embody some risk.

As mentioned earlier, the concept of risk permeates every stage of the capital budgeting process and every component of the four-pillar valuation and management framework. Certainly, employing a thorough environmental scanning program can reduce risk. However, even the best environmental scanning operation cannot predict the future with one hundred percent accuracy. Thus, all cash flow projections feature a degree of *forecasting risk*, that is, the chance that actual cash flows will vary from the projected cash flows. A good environmental scanning process will effect low forecasting risk. However, as mentioned earlier in Chapter One and later in this chapter, operating leverage also influences forecasting risk (the higher the operating leverage, the higher the forecasting risk).

In attempts to reduce the uncertainty involved in cash flow projections, several forecasting frameworks have arisen. Luehrman (1997b) describes the nature of cash flow projection methodologies:

Some [discounted cash flow] methodologies are formal, comprising theory and model; others are informal, operating by *ad hoc* rules of thumb. Some are applied explicitly, and others implicitly. They may be personalized by individual executives' styles and tastes or institutionalized in a system with procedures and manuals.

Luehrman (1997b) indicates a clear trend in the business world toward methods that are more formal, explicit, and institutionalized. Several of the formalized procedures for projecting cash flows, specifically the demand-driven forecast and the balance sheet-income statement forecast, follow.

Demand-driven forecast

Perhaps the most common approach is the demand-driven forecast, which begins with sales. Sales forecasts then drive most other variables, such as expenses, working capital, and operating profit margin (Copeland, et al., 1996; Rappaport, 1998; Rushmore, 1990). The demand-driven cash flow forecast uses a formula that looks like this (Rappaport, 1998):

$$\text{Cash flow equals: } [(Sales \text{ in prior year})(1 + Sales \text{ growth rate})(Operating \text{ profit margin})(1 - Cash \text{ income tax rate})] - [(Incremental \text{ fixed capital investment} + Incremental \text{ working capital investment})]$$

After each year's cash flows have been estimated, they then are discounted at the appropriate cost of capital to compute present value.

In the hotel industry, the build-up cover approach and the fixed and variable component approach are demand-driven forecasts that are based on the total number of covers a property is expected to sell (Rushmore, 1990). In the build-up cover approach, food revenues are forecasted by multiplying the total number of expected covers sold by the estimated average check amount. This approach can project demand by analyzing either lodging or restaurant activity. It is influenced by the number of outlets, management expertise, market orientation of each outlet, competitive environment, proximity to demand generators, and market segmentation of the hotel.

The fixed and variable component approach is based on the anticipated relationship of food revenue to room revenue and the anticipated relationship of beverage revenue to food revenue. It depends on data from a directly comparable hotel. It is calculated by multiplying the projected occupancy rate by the forecasted average room rate, then multiplying by 365 days (Rushmore, 1990).

Income statement-balance sheet forecast

Copeland, et al. (1996) and Luehrman (1997a) argue that the best estimation structure begins with an integrated income statement and balance sheet forecast. Copeland, et al. (1996) suggest beginning with a solid grasp of historical valuation variables, then forecasting individual income statement and balance sheet items based on performance scenarios. In this model, the line items then are used to forecast free cash flow, return on invested capital, and other value drivers. Luehrman (1997a, 1997b), who supports the Adjusted Present Value approach to project valuation and management, contends that cash flows from operations and cash flows from financing must be separated and discounted separately. However, he maintains that cash flow forecasts should be structured from income statement and balance sheet items. No matter which approach is used, the projections should consist of expected *incremental* cash flows. Incremental cash flows show the difference between the organization's future cash flows with the project and those without the project (Ross, et al., 2000).

Expected value analysis

“Forecasting financial performance is at best an educated guess; the best we can do is narrow down the range of likely future performance,” instruct Copeland, et al. (1996). When forecasting cash flows and assessing risk, an organization’s managers can evaluate the impact of various environmental events on investment returns using an expected value analysis (Olsen, et al., 1998). Table 2.1 illustrates this process, determining the expected value of cash flows for an investment. In this particular example, the effects of weather on an outdoor swimming area’s revenues are evaluated.

Column one of Table 2.1 shows a range of possible weather conditions for the designated period (in this case, Period 1 is the first year of the investment). Weather conditions range from hot to low temperatures and from high to low precipitation. Based on experience in the outdoor recreation industry, the manager predicted the effects that each level of weather conditions would have on revenues, shown in column two. Then, guided by long-range weather forecasts, the manager estimated the probability that each condition would occur (column three). Next, the manager multiplied the expected revenues in column two by the corresponding probability estimates in column three to derive a preliminary expected value from each weather event (column four). These values essentially are revenue estimates weighted by the probability of each possible event (Copeland, et al., 1996). Finally, the manager added all of the preliminary expected values together to arrive at an *average* expected value, shown in column five. Based on this analysis, the expected value of \$8,455.26 is the best estimate of actual future revenues.

Table 2.1. Expected value of swimming area revenues based on weather conditions.

Weather Conditions	Period 1 Revenues	Probability	Preliminary Expected Value	Average Expected Value
Hot temperatures	\$ 9,544.17	15%	\$ 1,431.62	
Mid temperatures	\$ 8,676.52	30%	\$ 2,602.95	
Low temperatures	\$ 7,635.33	55%	\$ 4,199.43	
		<i>Total:</i>	\$ 8,234.01	
Low precipitation	\$ 9,544.17	25%	\$ 2,386.04	
Medium precipitation	\$ 8,676.52	63%	\$ 5,422.82	
High precipitation	\$ 6,941.21	13%	\$ 867.65	
		<i>Total:</i>	\$ 8,676.52	\$ 8,455.26

The expected value analysis is not limited to weather conditions or swimming revenues. It is designed to evaluate the effects of any scenario (economic conditions, e.g.) on various value drivers (revenues, expenses, return on equity, risk premium, e.g.). The accuracy of the calculation requires a comprehensive set of assumptions about how the future may evolve and how particular scenarios can affect the organization’s financial performance (Copeland, et al., 1996).

Pillar Two: Determine the project's cost of capital

Some of the costs of investing in a project are represented in the cash flow component of Pillar One. Those operational or outlay costs, known as *expenses*, are incorporated into cash flow forecasts. However, another type of cost is associated with each capital investment: the cost of financing the project. With large investments, it typically is neither smart nor possible to fund a project with cash. Therefore, an organization must either borrow money or raise equity funds (or do both) to finance the project. Unfortunately, borrowing money and raising equity are not free. Each type of capital comes with a price. That price is known as the required rate of return. The *cost of capital* is a good estimate of the required rates of return of both debt and equity investors. Building on the discussion of cost of capital in the first chapter, the following section examines each of the Pillar Two components listed in the following dialog box.

<p style="text-align: center;"><u>Pillar Two Components</u></p> <p style="text-align: center;">Capital structure Cost of debt Cost of equity The tax decision Risk influence Risk-free rate Project-based or Adjusted Present Value</p>

Capital structure

The particular combination of debt and equity that an organization employs---its capital structure---is a managerial decision. Given that the organization uses both debt and equity sources of capital, its overall cost of capital is a mixture of the returns required to compensate its creditors and equity holders. The ideal mix of debt and equity is the one that maximizes value for the organization and minimizes the overall cost of capital (Ross, et al., 2000). The capital structure is dynamic, changing over time and varying from project to project. For a detailed discussion on the calculation of cost of capital as it relates to capital structure, the reader can refer to the earlier section of this chapter titled *Translating value drivers into value: A framework for valuing investments*. That section introduces weighted-average cost of capital as an estimate of a project or firm's capital costs.

Several works have cited various trends influencing college and universities' capital structures. Prior to the 1980s, public officials simply raised taxes or created new taxes in order to finance new government projects (Stainback, 2000). Colleges and universities either received sufficient state appropriations for new facilities or financed their capital projects with a combination of cash reserves, gifts, and tax-exempt debt (Hennigan, 1995). However, in the early 1980s, states slowed their capital project

appropriations in response to taxpayer resistance (Stainback, 2000). At the same time, demand for state-of-the-art science and technology facilities and building maintenance requirements intensified universities' capital needs. Both public and private universities had difficulty raising the capital they required to finance their facility projects (Hennigan, 1995). Thus, university officials earnestly started investigating alternative ways, including debt service, to finance and deliver services and facilities (Stainback, 2000).

Hennigan (1995) asserts that institutions will rely on debt as a larger part of their financial structures in the future. Debt management will gain a greater role in university-wide strategic planning, encompassing a broad range of activities like endowment management and facilities planning. Further, facilities planning and debt capacity assessment will reflect a more integrated management of assets and liabilities.

Cost of debt

Within its capital structure, an organization has some flexibility to adjust the structure of its debt sources and its equity sources. For instance, an organization can use a combination of bonds and bank loans, each with different costs, to make up its debt structure. Mikesell (1991) argues that the characteristics of debt structure should ideally minimize costs, simplify debt management, and provide appropriate cost signals to fiscal decision-makers.

The following sections on the cost of debt deal with three types of debt: loans, bonds, and leases. Loans are a common source of financing in all three sectors---government, business, and household---sectors of the economy. The cost of loans is determined differently from the cost of bonds, a source of financing used by the government and business sectors. Leases, often not considered a source of debt, can act like debt in certain situations. The common link among the costs of all sources of debt (and all sources of capital, for that matter) is the influence of risk. All creditors perceive that they are taking on a certain level of risk when they either issue loans or buy bonds. They require returns that compensate them for that risk. The returns that an organization must provide in order to obtain debt financing is known as the organization's cost of debt.

Leases

When a lease agreement involves the advance of money or interest payments, it acts as debt. This occurs in most lease purchase agreements when the public entity implicitly borrows money to buy something and pays lease payments equivalent to interest payments. Lease agreements that work like debt service come in two forms. One permutation is when a financial institution buys something (like a conference center) for a public entity and leases it to the entity. The financial institution can hold or sell the rights to the lease payments, but at some point, when the conference center is "paid for," ownership is transferred to the public entity. Another variation is when a vendor or public entity sells a lease-based contract where the collateral for the money borrowed is the lease agreement, the leased item, or both (Reed & Swain, 1997).

Loans

When an institution wishes to raise money to finance a capital project, it can approach a bank about borrowing all or a portion of the funds. The bank may agree to lend the money, with a specific promise from the borrower to pay back the money with interest. Then, the borrower and the lender agree to the terms of the loan, which include the amount of amortized payments, the length of the payment period, and the interest rate. For bank loans, the *prime rate* serves as the base for interest charges. The prime rate is the benchmark interest rate charged by banks to its large customers with good credit (Brealey, et al., 1999). This rate fluctuates with the general level of interest rates.

The interest rate on bank loans is often referred to in terms like “prime plus.” For organizations, individuals, or projects that present more risk than the bank’s best customers, the bank will charge additional interest. Thus, their interest rate becomes prime plus an additional percentage for risk.

Bonds

Bond issues are a major source of debt capital for both public and private institutions. A bond is a financial promise between a borrower and a lender in which the lender provides a sum of money to the borrower. The borrower agrees to pay the lender a fixed amount of money per year for a fixed number of periods and to repay the original amount at a later date (Fisher, 1996).

Municipal bonds are those issued by state and local governments. They are similar to United States Treasury bonds and corporate bonds, except their interest income is tax exempt from federal income taxation. Usually, their interest income is exempt from taxation in the issuing state as well. While municipal bonds constitute a huge drain of potential tax revenue from the federal government, the tax-exempt status greatly lowers the issuing entity’s cost of capital. Because they do not have to pay tax on interest income from these types of bonds, investors are willing to accept lower yield (Bodie, Kane, & Marcus, 2000). Municipal bonds have three main categories: general obligation, revenue, and private-activity.

General obligation bonds are backed by the “full faith and credit” (taxing power) of the issuer (Bodie, et al., 2000). In order to issue general obligation bonds, the government must (1) have the power to collect taxes and to pledge the use of general revenues in the particular situation and (2) pledge its full faith and credit to repayment of the debt. Such debt carries less risk for investors, which makes it more attractive to them and less costly to issuers. For the most part, general obligation bonds are used for general governmental purposes rather than for individual projects (Fisher, 1996; Reed & Swain, 1997).

Unlike general obligation bonds, *revenue bonds* (non-guaranteed bonds) are issued to finance particular projects, backed either by the revenues from that project or by the particular municipal agency operating the project. Because the full faith and credit of the issuing agency do not back them, they present a slightly higher default risk than general obligation bonds (Bodie, et al., 2000). According to Reed and Swain (1997), since mid-1970s, more than 70% of municipal bonds issued have been revenue bonds. Most often, the revenues come from revenue-generating facilities, but they can come from other sources, like taxes, as well. Because repayment risk associated with revenue bonds is higher than general obligation debt, the cost of issuing them is higher. However, revenue bonds carry fewer legal restrictions than general obligation bonds. For instance, state debt limits and requirement of voter approval for general obligation bonds make revenue bond issuance more attractive for individual projects (Fisher, 1996; Reed & Swain, 1997).

A third type of bond, the *private-activity revenue bond*, is used to support sanctioned private investment (Bodie, et al., 2000). State or local governments sell these bonds and use the proceeds for things like home mortgage loans or student loans. These bonds are not tax exempt. In order to be classified as a private-activity bond, more than ten percent of the bond funds must be used by a private business or individual and more than ten percent of the principal or interest must be secured by payments from a private business or individual (Fisher, 1996).

Bonds are usually given a credit rating by at least one of the two major private rating firms, Moody's Investor Service or Standard and Poor's. The credit rating is intended to provide information to potential investors about the perceived risk of the bonds. Thus, the credit rating depends on the economic and fiscal health of the issuing organization and on the specific purpose of project for the borrowed funds (Fisher, 1996; Mikesell, 1991; Reed & Swain, 1997). Criteria for Moody's and Standard and Poor's credit ratings appear in Table 2.2. Also, a generic recipe for estimating different bond costs compared to general obligation bonds appears in Table 2.3. Organizations can manage their bond costs through care to maintain good credit-worthiness, careful tailoring of maturities and timing of debt issues, use of the recently-narrowed ability to issue federal tax-exempt debt, and use of available debt guarantees (Mikesell, 1991).

Table 2.2. Credit ratings by Moody's Investors Service and Standard & Poor's Corporation. Adapted from Mikesell, 1991.

Moody's Investors Service	Symbol		Standard & Poor's Corporation
Best quality, smallest degree of investment risk; referred to as "gilt edge."	Aaa	AAA	Prime: obligation of highest quality and lowest probability of default; quality management and low-debt structure
High quality; smaller margin of protection or larger fluctuation of protective elements than Aaa	Aa	AA	Higher grade: only slightly more secure than prime; second lowest probability of default
Upper medium grade, many favorable investment attributes; some susceptibility to future risk evident	A	A	Upper medium grade: safe investment; weakness in local economic base, debt burden, or fiscal balance
Medium grade: neither highly protected nor poorly secured; adequate present security but may be unreliable over any great length of time	Baa	BBB	Medium grade: lowest investment security rating; may show more than one fundamental weakness; higher default probability
Judged to have speculative elements; not well safeguarded; very moderate protection of principal and interest, over both good and bad times	Ba	BB	Lower medium grade; speculative noninvestment-grade obligation; relatively low risk and uncertainty
Lack characteristics of desirable investment	B	B	Low grade; investment characteristics virtually nonexistent
Poor standing; may be in default	Caa	CCC	Defaults
Speculative in high degree; default or other marked shortcomings	Ca	CC	
Lowest rated class; extremely poor prospects of ever attaining any real investment standing	C	C	

Table 2.3. Public higher education security matrix. Adapted from Hennigan, 1995.

Public Higher Education Debt Financing Methods	Rating, in relation to state general obligation	Cost of Capital: number of basis points higher than state general obligation
General obligation of the state	Same	Same as state
General obligation of the university	Same to half step below	5-10
Higher education purpose state appropriation revenue bonds	One step below	10-20
Multicampus, multiproject system revenue bonds	One step below	15-20
Combined fee system revenue bonds	Half to full step below	15-20
System revenue bonds	Half to one and a half steps below	20-30
Auxiliary revenue bonds (housing, dining facilities, etc.)	Half to one and a half steps below	20-30

Traditionally, sub-national governments have enjoyed taking advantage of the lower costs associated with tax-exempt bond issuance. However, some economists promote the issuance of taxable debt by state and local governments. Taxable debt costs more than tax-exempt debt because it must compensate the investor for additional interest income tax expense. With taxable bonds, the federal government could subsidize the lower government's borrowing costs and benefit from income tax revenues. Historically, sub-national governments have not been interested in giving up tax-exempt debt for fear that the federal government might not offer a subsidy rate equal to that of the tax exemption (Fisher, 1996).

All public universities and some private colleges/universities maintain access to the tax-exempt bond market. The tax-exempt market remains the most cost-effective source of capital for facilities projects for these institutions. However, the 1986 Tax Reform Act has placed a \$150 million cap on the amount of tax-exempt debt that independent colleges and universities can issue. Institutions below this cap can continue issuing tax-exempt bonds while institutions above this cap must employ taxable debt. Since the imposition of the cap, the higher education municipal bond market has been segmented into three groups: private universities over the \$150 million cap, private universities under the \$150 million cap, and public universities not subject to the cap. For each of the three sub-groups, debt management is quite different (Hennigan, 1995).

Cost of equity

In the corporate world, equity is the portion of value that is left over after all of the creditors (debt holders) have been paid. Since stockholders own the company, the firm's equity is also called *shareholders' equity*. Since equity holders must wait until after the creditors have been paid to receive their share of the wealth, their holdings carry a higher risk than debt does. Thus, they must demand a higher rate of return from the company than debtors do. Therefore, equity capital comes at a higher cost than debt capital.

In the public sector in general and in colleges and universities in particular, the corporate concept of equity does not apply. Colleges and universities typically do not have shareholders. In addition, the non-debt investors in college and university activities often give their money as charitable donations or gifts without expecting direct monetary returns. This does not mean their contributions are not important. Rather, it means that certain investments like endowments, grants, and gifts, in college and university activities do not fit into the well-established models (Dividend Growth Model or Capital Asset Pricing Model, e.g.) for estimating the cost of equity capital. Instead, it may be more appropriate to think about the cost of non-debt capital for universities and colleges as an *opportunity cost*.

An opportunity cost is the most valuable alternative that is foregone by undertaking a particular investment (Ross, et al., 2000). For instance, if a university decides to invest in a conference center, it may be missing an opportunity to place its resources in a potentially higher-return bookstore on campus. If funds were not limited, opportunity cost would not be an issue; the university could just invest in every alternative that arises. However, limited funds do require managers to evaluate competing alternatives.

One way to assess opportunity cost is to charge a project for the revenues that it would forego by not investing in a competing project. In this case, the foregone revenues would be accounted for in the cash flow projection. Another way to address opportunity cost is to consider the returns that an investor could earn by placing his or her money in a similar project with identical risk characteristics. In order to use the investor's money the most efficiently, the project must provide returns at least as high as the best alternative. By extension, this opportunity cost of equity can substitute for the actual cost of equity in the organization's cost of capital calculation.

The tax decision

For corporations, income tax policy greatly influences capital structure decisions. Interest payments on debt are tax deductible and thus generate a valuable tax shield (Ross, et al., 2000). Coupled with the fact that dividend payments on equity shares are subject to personal income tax, interest tax shields make debt capital quite attractive compared to equity capital. However, the concept of financial leverage, discussed in

detail later in this chapter, suggests that high levels of debt financing pose risk for the firm.

In the public sector and the private, non-profit sector, most institutions are exempt from income tax requirements. Therefore, the attractiveness of debt compared to equity does not apply to the extent that it does for the private sector. In fact, if an institution were able to collect enough donations to fund an entire capital project, the cost of capital would equal only the opportunity cost. However, tax advantages do come into consideration in the public sector when the institution is considering the trade-offs between issuing tax-exempt bonds or taxable bonds.

Variations on the valuation approach: Adjusted present value

At the beginning of this chapter, it was pointed out that the traditional discounted cash flow approach to valuation can be applied to any entity that produces cash flows. That means it can be used to value assets, projects, competitive methods, or entire firms. Some theorists and practitioners suggest that accuracy of this approach is limited because it combines operating cash flows with financing side effects and discounts them at the same cost of capital, usually WACC. Additionally, when valuing a firm, it discounts the cash flows of all activities at the same rate when each activity embodies different capital structures and risk features. Thus, an adjusted present value approach may be more appropriate than the net present value approach.

According to Luehrman (1997), today's better alternative for valuing an operation or a project is to apply the basic discounted cash flow relationship to each of the organization's various kinds of cash flow and then add up the present values. This adjusted present value (APV) approach focuses on two main categories of cash flows: real cash flows associated with operations (such as revenues, cash operating costs, and capital expenditures) and side effects associated with financing (such as values of interest tax shields, subsidized financing, issue costs, and hedges). APV relies on the concept of *value additivity*, which indicates that it is possible to split a project or investment into pieces, value each piece, then add the pieces back together (Luehrman, 1997).

The project-based adjusted present value approach may be useful to colleges and universities because of their special tax considerations. By separating operating cash flows from financing cash flows and discounting them at separate interest rates, the manager can come up with a more accurate assessment of project value than if they used the traditional discounted cash flow approach.

Pillar Three: Identify and manage risk issues

As mentioned several times throughout this document, *risk* is the variance in cash flows associated with a particular investment. Investments with large cash flow variance are considered to be high-risk investments, while investments with small cash flow variance are considered to be low-risk investments. Risk-averse investors require

compensation for the risks accompanying investments that result in additional cash flow variance. This need for compensation is reflected in investors' required rates of return and, thus, in the organization's cost of capital. The organization's financial managers must constantly identify and manage risk issues in order to determine and reduce the organization's cost of capital.

Two manageable components make up an organization's risk characteristics: operating leverage and financial leverage. These two components are discussed in this section.

Pillar Three Components

Operating leverage
Financial leverage

Operating leverage

Operating leverage refers to "the degree to which a firm or project relies on fixed costs" (Ross, et al., 2000). For instance, a *capital-intensive* project with a large investment in plant and equipment is considered to have a relatively high degree of operating leverage. For this project with high fixed costs, operating leverage can translate a small change in operating revenue into a large percentage change in operating cash flow (and, therefore, net present value). Thus, a project with high fixed costs presents great *forecasting risk*. The reason is that a small error in one line item (like sales revenue) can be magnified into a large error in cash flow projections. An organization's managers can cope with this risk by attempting to keep operational leverage as low as possible.

University conference centers are capital-intensive investments. The infrastructure, furniture and fixtures, and labor required to operate a conference center remain high despite the amount of business it generates. Thus, a small change in an input like lodging revenue can greatly influence the variation in overall cash flows. Therefore, a conference center represents relatively risky investment to any college or university.

Financial leverage

Financial leverage refers to the degree to which a project or firm relies on debt capital in its financial structure. The more debt a project or firm carries, the more financial leverage it employs. As mentioned earlier, debt capital bears a lower cost than equity capital because it is secured. Thus, it would seem that a large proportion of debt in the financial structure would serve to bring the cost of capital down. However, the *M & M Proposition II* illustrates that the cost of equity increases as the degree of financial leverage increases (Ross, et al., 2000). This makes sense, as the project or firm must cover all of its debt obligations before it provides returns to its equity investors.

Thus, the investment is considered by equity investors to be riskier than an investment in a firm with lower financial leverage. Despite the fact that equity capital in a highly leveraged firm requires a high rate of return, the low cost/high proportion of debt capital balances that cost. Thus, the *Weighted-Average Cost of Capital* remains unchanged. The ideal capital structure—the optimal mix of debt and equity—for a firm is “the one that maximizes the value of the firm and minimizes the overall cost of capital” (Ross, et al., 2000).

Hennigan (1995) predicts that, due to shrinking endowments and decreasing state support, universities and colleges will be forced to increase their financial leverage in the future. Within the context of conference center investments, higher financial leverage may increase the required returns that conference centers must provide.

Pillar Four: The investment(s)

Pillar Four, *the investment(s)*, has many components, shown in the dialogue box below. However, this discussion will focus on the evaluation of quality and life of investment materials. When considering an investment, the project leaders must consider the quality of materials as it relates to the life cycle of the investment and the future cash flow stream. Each decision involves a trade off: invest in better materials at a higher cost now and forego future maintenance costs or invest in lower-quality materials at a lower cost now and pay higher maintenance costs later.

Pillar Four Components

Capital outlay required
Evaluating quality and life of investment materials
Determining state of the art technology and materials
Skill at locating materials
Design, engineering, etc.

On college and university campuses across the nation, maintenance backlogs have become a big issue. At the University of Massachusetts in Amherst, for example, the maintenance backlog was estimated at \$400 million in the late 1990s. In Kennedy’s (2000) words:

[This] general scenario is familiar to countless colleges and universities. Aging buildings, many of them constructed quickly a generation ago to meet enrollment spurts, need fixing. In most cases, the need outstrips the available revenue, so projects are postponed. The needs grow, and problems that are not fixed promptly cause more deterioration. Soon, a school is in a deferred maintenance hole so deep it has no way to escape...[However,] as awareness of the problem has grown and a healthy economy has freed up more resources, colleges and universities are able to spend more money to repair or replace their aging facilities.

This maintenance situation is an indication of the priorities and decisions made by college and university officials during a growth spurt in college admissions during the 1950s, 60s, and 70s. At that time, the need for erecting facilities quickly outweighed the value of constructing long-lasting buildings. The long-term result, generations later, has been an overwhelming need for maintenance and repairs. The purpose of this illustration is not to pass judgment on those institutions that swapped early construction expenses for large maintenance bills later. The purpose is, however, to show that early decisions about construction and materials require the evaluation of trade-offs, which will influence cash flows both now and in the future.

SUMMARY

This chapter has introduced the Co-Alignment Principle as a strategic management philosophy and has discussed the Four Pillars of project valuation and management in detail. In order to recap these ideas for the reader, a summary table of concepts, variables, and operational measures follows.

Table 2.4. Concepts, variables, and operational measures.

Concept	Variables	Operational measures
Life cycle	<ul style="list-style-type: none"> • Actual effective life of investment • “t” in net present value formula • sustainable rate of return 	<ul style="list-style-type: none"> • How was “t” determined? • When do you think you will need to begin replacing assets? • What things did you see as influencing the effective life of your investment?
Cash flow forecast, expected value analysis	<ul style="list-style-type: none"> • Forecasting method: demand-driven, income statement-balance sheet • Value drivers-variables that influence cash flow estimates (continuing education, faculty output, sales, etc.) • Formalized/informal forecasting procedure • Environmental scanning program • Performance scenarios 	<ul style="list-style-type: none"> • What forecasting method was used? • What things did you see as influences on your cash flow streams? • Was a feasibility study performed? What did it say? Were you happy with the results? Why or why not?
Cost of capital	<ul style="list-style-type: none"> • Returns required by investors • Sources of debt (loans, bonds, leases) • Cost of debt (credit rating, interest rate) • Sources of equity (donations, grants, etc.) • Ability to raise funds • Opp. cost of equity 	<ul style="list-style-type: none"> • Prime rate • Average return on market • Sources of debt and equity • Amount of capital needed, amount raised • Hurdle rate used
Risk Managing risk	<ul style="list-style-type: none"> • Uncertainty of cash flows • Forecasting risk • Financial risk (interest rate risk, default risk, growth potential, financial leverage) • Operating risk (management expertise, operating leverage) • Adjusting cost of capital • Guaranteeing bonds • Ensuring faculty ability to stimulate demand 	<ul style="list-style-type: none"> • What kinds of things did you discuss in terms of risk? • What did you do to try to reduce risk? • How did you define risk?
Life span versus cost	<ul style="list-style-type: none"> • Quality of materials and labor • Source of materials and labor • Cost of materials and labor 	<ul style="list-style-type: none"> • What factors influenced the quality of construction materials you chose? • How did the quality of construction materials influence the life span of your cash flows?

Three: Methodology

INTRODUCTION

The introductory chapter of this document, Chapter One, exposes the issues surrounding university conference center valuation and project management, suggesting that the body of knowledge available to scholars and practitioners is inadequate. It also introduces the four-pillar research framework guiding the study. Chapter Two identifies and explicates several research domains relevant to the problem (strategic management, corporate finance, public administration, and public finance), further illustrating that the body of literature specific to university conference centers is virtually nonexistent. Capital budgeting decisions in the college or university setting represent complex, often individualized, decisions that evolve in many different ways. The intricate and contemporary nature of this problem provides limited research precedence and few established tools for examination. In order to investigate this matter and contribute to the body of knowledge regarding university conference centers, this study established an exploratory research framework. “This [exploratory] approach is typical when a researcher examines a new interest or when the subject of study itself is relatively new,” asserts Babbie (1998). The outcome of an exploratory study is expected to be, at the very least, a rough understanding of the phenomenon of interest.

To study the complex phenomenon of university conference center financing decisions, the researcher adopted the multiple case study approach. Using replication logic, the investigator selected universities (cases) that would represent the public and private sectors as well as a range of conference center ages, management characteristics, and locations. At each of the five universities included in the study, the researcher interviewed at least two key officials and collected secondary information sources. The bulk of this chapter describes in detail the research strategy guiding this study and serves as the case study protocol.

RESEARCH DESIGN

Research design begins with the articulation of a question or questions and addresses the planning of scientific inquiry (Babbie, 1998). It is the master plan (Zikmund, 2000) or “blueprint” (Yin, 1994) that specifies the methods and procedures for collecting and analyzing needed information. Research design helps the investigator obtain answers to research questions and control the experimental, extraneous, and error variances of the research problem under study (Kerlinger, 1965).

The research design is dictated by (1) the type of research question being posed, (2) the extent of control an investigator has over actual behavioral events, and (3) the degree of focus on contemporary as opposed to historical events (Yin, 1994). Based on these three criteria, Table 3.1 displays the relevant situations for different research strategies. Researchers agree that there is no one best research design for all situations

(Zikmund, 2000). The investigator must determine from the nature of the problem and the body of knowledge which method or combination of methods is the most appropriate to use.

Table 3.1. Relevant situations for research strategies, adapted from COSMOS Corporation (cited by Yin, 1994, page 6).

Strategy	Form of research question	Requires control over behavioral events?	Focuses on contemporary events?
Experiment	How, Why	Yes	Yes
Survey	Who, What, Where, How many, How much	No	Yes
Archival analysis	Who, What, Where, How many, How much	No	Yes/No
History	How, Why	No	No
Case study	How, Why	No	Yes

Justification for using the case study method

In the college or university environment, conference center investment decisions are complex and highly contextual. Decisions are influenced by each college or university's educational and financial goals as well as its location, its relationship with the surrounding community, its affiliation (public versus private), and a host of other factors. Because of the many variables involved, it is difficult to separate conference center investment decisions from the context in which they are made and executed. Rather than attempt to study phenomenon and context separately, this investigation delves into the complex relationships among variables influencing and resulting in college/university conference center investments. The complex, contextual, and evolving nature of college/university conference center investment decisions yielded the following research questions guiding this study:

Overall research question: How do university officials make conference center investment decisions based on the four pillars of project valuation and management?

Research question 1: How do university officials estimate the future cash flows of their conference center investments?

Research question 2: How do university officials determine an appropriate cost of capital for conference center projects?

Research question 3: How do university officials identify and manage risk issues with regard to developing conference centers?

Research question 4: How do university officials determine the appropriate investments in materials and other resources when developing conference center projects?

As the rapid growth of college/university conference center development is a relatively modern phenomenon, there is little research precedence to guide this investigation. Defining the research questions is probably the most important step of research design because research questions not only determine the study's domain, but also guide data collection and interpretation. Further, the form of the research questions--*-who, what, why, where, how, how much, or how many---*points toward the appropriate research strategy. When a study's research questions ask *how* or *why*, as this study's do, the case study method is appropriate to employ (Yin, 1994). However, Table 3.1 illustrates that two additional characteristics of the investigation---the researcher's control over behavioral events and the contemporary nature of the events---also influence method choice. Like the case study, the experiment method answers research questions that ask *how* and *why* as well as deals with contemporary events. However, the experiment design requires a high degree of researcher control over situational and behavioral factors. In the present study, the researcher has no control over the actual decisions that university officials make regarding conference center projects. In this instance, the case study method, which is able to deal with situations that cannot be controlled or manipulated, was chosen for its merits (Yin, 1994).

In summary, the case study is an empirical study that investigates a *contemporary phenomenon* within its real-life context; when the boundaries between phenomenon and context are *not clearly evident*; and in which *multiple sources* of evidence are used (Yin, 1994). As mentioned earlier, university conference center development is a relatively modern phenomenon, which is growing rapidly (D. Smith, personal communication, March 24, 2001). In addition, conference center investment decisions are highly dependent on each college or university's contextual situation, necessitating the study of phenomenon and context together. Finally, the complex nature of capital budgeting decisions at colleges and universities requires multiple sources of evidence like interviews and written documents to provide a complete picture of the phenomenon within its context. The case study approach, which links a contemporary phenomenon like conference center development to the college or university context through multiple sources of evidence, was the best research method to use for this study. It allowed the researcher to investigate the decision-making behavior of college and university officials using in-depth interviews and other sources of corroboratory evidence.

Organization of this chapter

The primary objective of this chapter is to map the study's research design. This map serves the purposes of instructing the researcher's activities and guiding the reader's understanding of the investigation. In this sense, it serves as the case study protocol (Yin,

1994). For organizational purposes, the research design map uses the same sub-headings as Babbie's (1998) book section on how to design a research project. However, Yin's (1994) seminal work on case study research provides the methodological substance following each sub-heading. This framework operates on the basis of sequential *parts*, but Babbie (1998) notes that the researcher must grasp the research process as a *whole* to create a research design.

Scientific inquiry begins when a researcher takes interest in a phenomenon and develops ideas or theories about the phenomenon. This curiosity leads the investigator to formulate research questions. Through research design, the examiner lays out a plan for methodically answering his or her research questions. Babbie (1998) indicates that the components of a thorough research design are *conceptualization, research method choice, operationalization, population and sampling, observations, data processing, analysis, and application*.

The first component of Babbie's research design framework, conceptualization, is the process of clarifying the concepts being used in the study (Babbie, 1998). Revealed in Chapter Two, current study's conceptualization phase incorporated the results of a literature review as well as the researcher's conversations with colleagues (for a summary of concepts, variables, and measures, see Table 2.4). Conceptualization also yielded four specific research questions, which appear in the preceding section of this chapter. Selection of the case study method for this investigation satisfied the second research design component, research method choice. A thorough justification for this choice also appears in the preceding section of this chapter. Therefore, the balance of this chapter addresses the remaining components of research design: operationalization, population and sampling, observations, data processing, analysis, and application.

Operationalization

As an extension of the conceptualization process, *operationalization* refers to the specification of how variables are to be measured (Babbie, 1998). This includes not only the delineation of techniques to be used, but also the articulation of questions to be asked. As the previous discussion makes clear, this study uses the multiple case study design to explore the research questions regarding the four pillars of project valuation and management. However, the case study method can encompass a number of data collection techniques. The purpose of operationalization in this situation serves to select one or more data collection techniques and to focus the scope of the research.

Research scope

Mentioned throughout the course of this document, the context of this study is residential conference centers affiliated with American colleges or universities. Specifically, the study deals with investment decisions made by college or university officials regarding conference center development. In order to represent the variables that might influence each college or university's application of the four pillars of project

valuation and management, replication logic (discussed further in the section on population and sampling) was used to select cases. Also, to capture the complexity of investment decisions and to boost construct validity, multiple sources of evidence were used. The two main sources of information were in-depth interviews and written documents.

Interviews

In order to examine the rich, intricate dynamics of project valuation and management in the university environment, semi-structured interviews were chosen as the primary data collection technique. The targeted nature of the interviews allowed data collection to focus on the topic of conference center project valuation and management. In addition, the evolving character of discussion in the interviews allowed the researcher to derive insightful inferences regarding the topic. The following dialog box outlines additional benefits of interviews. The researcher in this investigation used open-ended questions to obtain factual information as well as to glean informants' opinions about the matter (Yin, 1994).

Benefits of interviews

- Obtain a great deal of information
- Flexible and adaptable to individual situations
- Can be used when no other method is adequate
- Permits probing into the context of, or reasons for, answers to questions

Yin (1994) strongly emphasizes the importance of the planning phase of case study research. If the researcher truly desires to perform a valid, reliable case study, he or she must map out the expected results of the study during the operationalization phase of the project. During this stage, the researcher articulates interview questions and concepts to the extent that the interview structure will allow. Then, the investigator sets up table shells or some other skeletal framework for displaying the data. This game plan maintains firm ties to the research questions in order to steer the investigator toward reaching the project objectives. Following a discussion of the interview plan guiding this study, a summary table of interview questions appears in this section.

The semi-structured nature of the interview plan provided guidance for the study through predefined questions, but also afforded flexibility to explore divergent evidence or other related issues. Open-ended questions encouraged discussion, provided a frame of reference, and established depth without steering responses (Connolly, 1999). A summary of interview questions appears in Table 3.2. A complete list of interview questions appears in the Appendix.

Table 3.2. Summary of interview questions.

Category	Example interview questions
Participant background	<ul style="list-style-type: none"> • Position(s) held, responsibilities, etc. • Decision-making authority with respect to conference center development
Institution background	<ul style="list-style-type: none"> • Private/public; for-profit/non-profit • Location, size, number of students • Culture and structure
Conference center background	<ul style="list-style-type: none"> • Size, number of rooms, size of staff • Organizational structure, culture • Operational structure (who operates?) • Relationship to college/university • Reporting structure
Conference center strategy	<ul style="list-style-type: none"> • Orientation and mission statement • Planning horizon • Cost of capital
Cash flow estimates	<ul style="list-style-type: none"> • Processes, methods, criteria used to estimate future cash flows of conference center project • Strengths and weaknesses of evaluation and decision-making process • Influencing factors • Sources of input • Sources of output • Participants and level of participation within or outside college/university
Cost of capital	<ul style="list-style-type: none"> • Processes, methods, criteria used to estimate cost of capital of conference center project • Strengths and weaknesses of evaluation and decision-making process • Influencing factors • Sources of input • Sources of output • Participants and level of participation within or outside college/university • Opportunity costs • Treatment of conference centers compared to other investments

Table 3.2 (continued)

Category	Example interview questions
Risk	<ul style="list-style-type: none"> • Processes, methods, criteria used to estimate risks of conference center project • Strengths and weaknesses of evaluation and decision-making process • Influencing factors • Sources of input • Sources of output • Participants and level of participation within or outside college/university • Costs of inaction (opportunity costs) • Assessment of risk, returns; criteria used to judge • Treatment of conference centers compared to other investments • Assessment and impact • How risk is defined with respect to conference centers • Hurdle rates used when evaluating conference center decision
The investment	<ul style="list-style-type: none"> • Processes, methods, criteria used to estimate risks of conference center project • Strengths and weaknesses of evaluation and decision-making process • Influencing factors • Sources of input • Sources of output • Participants and level of participation within or outside college/university • Treatment of conference centers compared to other investments

Documentation

A principal strength of case study research is its ability to incorporate various forms of data into a complete picture of the phenomenon under study. In fact, case studies rely on multiple sources of evidence to derive conclusions in a triangulating fashion (Yin, 1994). Using multiple sources of evidence in a manner that encourages convergent lines of inquiry bolsters construct validity. In addition to employing interviews as the primary data collection technique, the current study used documentary evidence to derive conclusions about conference center valuation and management among universities and colleges. The researcher gathered and analyzed as many written documents as possible (feasibility studies, internal memoranda, working papers, project goals, etc.) in concert with interview results to paint the most complete picture of the phenomenon under investigation.

Population and sampling

Referenced throughout this document, the population investigated in this study is residential conference centers affiliated with American colleges and universities. Despite the large population of college/university conference centers, sampling logic is inappropriate for this study. In multiple case study research, sampling logic based on statistical rationale does not hold. The in-depth, time-consuming nature of case studies makes probability sampling of a large population virtually impossible. Thus, replication logic becomes the most appropriate logic to use when selecting cases (Yin, 1994). According to Yin (1994), each case chosen “should serve a specific purpose within the overall scope of inquiry. Here, a major insight is to consider multiple cases as one would consider multiple experiments.” Each case is like a single experiment with analysis following cross-experiment design and logic.

Replication logic encompasses two sub-types (Yin, 1994). The first is *literal replication*, which predicts similar results across cases. The second is *theoretical replication*, in which different cases produce different results, but for predictable or theoretical reasons. In establishing criteria for case selection, this study attempted to use both literal and theoretical replication logic. Using theoretical replication logic, the five selected cases were chosen to represent university characteristics or conference center characteristics that, theoretically, would influence the project valuation and management procedures at each site. Those characteristics were university ownership structure (public sector versus private sector), conference center ownership structure (public sector versus private sector), conference center financial goals (for-profit versus non-profit), and conference center management structure (self-operated versus externally managed; managed with a brand “flag” versus managed without a brand “flag”). Within each of the four categories, an attempt was made to follow literal replication logic by studying two or more schools exhibiting the same characteristics. For instance, four public universities with different conference center management structures were selected for the potential literal replication occurring among the public university structure and for the potential theoretical replication occurring across the different management structures. To develop acceptable replication logic in choosing cases, discussions with hospitality consultants and Internet research were conducted to uncover interesting cases for study.

Because sampling logic is not used in multiple case study research, the typical criteria regarding sample size are irrelevant (Yin, 1994). The number of cases chosen in multiple case study research often is arbitrary and frequently is based on time and money constraints (Eisenhardt, 1989, cited in Connolly, 1999). For this study, travel time and expense came under consideration when selecting the sites for data collection. However, all potential cases were analyzed for their possible contributions to literal and theoretical replication. Multiple (five) sites were chosen to bolster the certainty of results.

Observations

In case study research, the concept of *observation* refers to data collection. Case study data collection requires a great deal of preparation. In Yin’s (1994) words:

The preparation for doing a case study includes the prior skills of the investigator, the training and preparation for the specific case study, the development of a case study protocol, and the conduct of a pilot case study...To help prepare an investigator to do a high-quality case study, intensive training sessions should be planned, a case study protocol should be developed and refined, and a pilot study conducted. These procedures are especially desirable if the research is based on multiple-case design or involves multiple investigators (or both).

Preparation and case study protocol

Only one investigator, the author, collected data for this investigation. Her preparation included designing the study and developing the case study protocol. The current document served as the protocol for data collection and analysis. Had additional researchers been needed, preparatory seminars would have been conducted and a separate case study protocol would have been produced to ready them for data collection.

Pilot test

In final preparation for data collection, a pilot test was performed at the author's alma mater. This site was chosen for convenience, access, and geographical proximity (Yin, 1994). The pilot test covered both substantive and methodological issues, allowing the researcher to "practice" the interview approach and revealing relevant concepts or "jargon" regarding university conference center investments.

Participants and logistics

Case study research requires the researcher to have access to organizations willing to participate in and to support the investigation. Without the openness of participants, this study would not have been possible. Access to these participants was gained through colleagues and contacts in the field. Interview respondents were selected for their roles in conference center investment at their respective institutions. Targeted respondents were chief financial officers, project managers, or state government officials responsible for planning or authorizing college/university conference center investments.

Job titles of respondents who participated in interviews

- Vice President for Administration
- Chief Executive Officer of the university Foundation
- Vice President for Fiscal Planning and Services
- Director of Business Management and Analysis
- Director of Conference Center
- Vice President for Budget and Financial Management
- University Treasurer
- Associate Vice President for Auxiliary Services
- Director of Continuing Education
- Foundation Treasurer

Data collection

Data collection occurred over a six-week period. During this period, the researcher visited each of the five sites under study to conduct interviews and to gather documentary evidence of university conference center investments. Each interview (except for one, which was conducted by telephone) was conducted in person, one-on-one with the respondent. The researcher tape-recorded each interview to foster the reliability of results. At the end of an interviewing day or at the end of a site visit, the researcher prepared field notes from the interview results. Any necessary follow-up correspondence was done by telephone or via electronic mail.

Data processing

“Depending on the research method chosen, [a researcher may] have amassed a volume of observations in a form that probably isn’t immediately interpretable,” asserts Babbie (1998). Such is the situation with qualitative multiple case study research, in which the investigator collects copious amounts of information from various sources. In that case, the data must be organized in some way to make sense for the researcher and for other investigators. Yin (1994) suggests creating a case study database and establishing a chain of evidence to aid data processing.

Case study database

Most research strategies include documentation protocols that consist of two separate collections (Yin, 1994):

1. The data or evidentiary base and
2. The report of the investigator, whether in article, report, or book form.

While the distinction between a separate database and the case study report has not yet become an institutionalized practice in case study research, the idea is that each

case study should strive to develop a formal, presentable database separate from the report. If this is accomplished, other investigators, in principle, can review the evidence directly for corroboration or for secondary analysis (Yin, 1994).

For this study, a case study database including notes, documents, tabular materials, and narratives was created. Details regarding each type of evidence appear in Table 3.3. Reliability of the data was increased the extent that this database allows other researchers to examine and understand the evidence.

Table 3.3. Types of evidence included in the case study database

Type of evidence	Examples
Notes	Handwritten; electronic; and typed, “hard-copy” notations of literature reviews, interviews, and document analyses
Documents	Electronic or hard copies of mission statements, feasibility studies, financial statements, memoranda, etc.
Tabular materials	Spreadsheet data collected from research sites and tabular data displays created by researcher
Narratives	Audio tapes of interviews; written accounts of interview responses

Chain of evidence

The chain of evidence in a case study allows the reader “to follow the derivation of any evidence from the initial research questions to ultimate case study conclusions” (Yin, 1994). Based on this chain of evidence, the external observer should be able to move in either direction---from research questions to conclusions or from conclusions to research questions---along the continuum. If the chain of evidence remains intact and functional, the case study will have addressed methodological problems of construct validity and reliability (Yin, 1994). A chain of evidence in this project was constructed and maintained by creating a thorough case study database and by allowing the research questions to constantly inform data collection.

Analysis

Rounding out the research project, “data analysis consists of examining, tabulating, or otherwise recombining the evidence to address the initial propositions of the study” (Yin, 1994). Miles and Huberman (1984, cited in Yin, 1994) suggest a number of analytic techniques to employ during data analysis. From the range of possibilities, this investigation uses matrix tables and data displays to organize and present the data. Two general strategies can guide data analysis: relying on theoretical propositions or developing a case description. This study employs a permutation of the first strategy in that it relies on the research questions to guide analysis. The research questions shaped the data collection plan, focusing on the four pillars of project valuation and management.

Data analysis began with organization of the data into matrix tables centered on the four pillars of project valuation and management. Table 3.4 is an example of a shell table used. Following organization of data into matrices, patterns were pursued, comparatively with repeated observations and contrastingly with divergent observations. Within-case comparisons were done, followed by across-case comparisons.

Table 3.4. Cross-case comparison of Pillar One components.

University	Who performed cash flow projection?	Assumptions	Life span of conference center	Duration of cash flow projection	Performance metrics calculated?
A					
B					
C					
D					
E					

Application

A fundamental goal driving this study is to contribute to the body of knowledge with respect to university conference centers in such a way that practitioners in the field can use the information and that future researchers can build on the results.

Tests for research quality

Validity and reliability are common tests for research quality. Very briefly, validity refers to “the extent to which an empirical measure adequately reflects the *real meaning* of the concept under consideration” (Babbie, 1998). Several types of validity, namely construct validity and external validity, apply to exploratory case study research. A third type of validity, internal validity, is described in Table 3.5, but is not discussed further because it applies only to causal or explanatory case studies. In that respect, internal validity is beyond the scope of this study. Reliability, on the other hand, is very much within the scope of this investigation. In Babbie’s (1998) words, “Reliability is a matter of whether a particular technique, applied repeatedly to the same object, would yield the same result each time.” Reliability is synonymous with reproducibility. A detailed discussion of each test for research quality---construct validity, external validity, and reliability---follows Table 3.5, which describes the four tests of research design quality and explains how case studies deal with those tests.

Table 3.5. Tests for research quality.

Test for research quality	Description of test	Case study tactic
Construct validity	Establishing correct operational measures for the concepts being studied	<ul style="list-style-type: none">• Use multiple sources of evidence• Establish chain of evidence• Have key informants review draft case study report
Internal validity	Establishing a causal relationship, whereby certain conditions are shown to lead to other conditions, as distinguished from spurious relationships (for explanatory or causal studies only, and not for descriptive or exploratory studies)	<ul style="list-style-type: none">• Do pattern-matching• Do explanation-building• Do time-series analysis
External validity	Establishing the domain to which a study's findings can be generalized	<ul style="list-style-type: none">• Use replication logic
Reliability	Demonstrating that the operations of a study---such as the data collection procedures can be repeated, with the same results	<ul style="list-style-type: none">• Use case study protocol• Develop case study database

Construct validity

In simple terms, construct validity refers to a study's ability to measure what the researcher says it is trying to measure. In Baker's (1999) words, "construct validity is based on forming hypotheses about the concepts that are being measured and then testing those hypotheses and correlating the results with the initial measure." Traditionally, this test has been problematic in case study research, as many investigations fail to develop a sufficiently operational set of measures. When this occurs, subjective judgements may be used to collect the data (Yin, 1994).

Shown in Table 3.5, three tactics are available to increase the construct validity of case studies. The first is the use of multiple sources of evidence in a way that encourages convergent lines of inquiry. Any finding based on multiple sources of corroboratory evidence is likely to be more convincing and accurate than a conclusion drawn from a single source or from divergent evidence. A second strategy for increasing construct validity is to establish a chain of evidence. With a closely linked chain of evidence, the evidence presented in the case study report is assuredly the same evidence that was

gathered during data collection. The final way of dealing with construct validity is to allow key informants to review the case study report. This not only shows them professional courtesy, but also gives them the opportunity to corroborate the essential facts and evidence presented in the case report (Schatzman & Strauss, 1973, cited in Yin, 1994).

External validity

External validity deals with a study's ability to generalize its findings beyond the immediate case study(s). In many investigations, external validity is addressed through probability sampling of a population. However, case studies rely on *analytical generalization* rather than *statistical generalization* to test external validity (Yin, 1994). As Yin (1994) puts it, "In analytical generalization, the investigator is striving to generalize a particular set of results to some broader theory." In case studies, analytical generalization is accomplished through replication logic (see the earlier section on population and sampling).

Reliability

The final test for the quality of a research design is reliability, whose goal is to minimize the errors and biases in a study. Reliability refers to a study's reproducibility. In case study research, reliability can be increased by closely following a case study protocol and by developing a case study database.

SUMMARY

The case study research design was chosen to explore the extent to which university and college officials employ the four pillars of project valuation and management in conference center decisions. This methodology is supported by Yin (1994), who indicates that the case study is an empirical study that investigates a contemporary phenomenon within its real-life context; when boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used.

Having established the need for research and the theoretical underpinnings guiding this study in Chapters One and Two, this chapter exposed the multiple-case study approach as the method of choice for this investigation. The remainder of this document focuses on the results of the interview and document analysis phase of the project (Chapter 4) and discusses implications for application and future research (Chapter 5).

Four: Results

INTRODUCTION

This chapter provides an in-depth look into five university conference centers based on the methodology presented in the previous chapter. It explores their use of the Four Pillars of Project Valuation and Management in financing hotel conference centers.

The findings presented here are the results of interviews with representatives from each university and an analysis of secondary information provided by each university and gathered during the literature review. The secondary information, consisting of feasibility studies, investment presentations, pro forma financial statements, press releases, and journal articles, was used to supplement and validate participants' responses to interview questions. A summary of the available secondary sources of information used in this study can be found in Table 4.1. Due to concerns for privacy and to the lack of information in some cases, access to some of the documents was restricted.

This chapter begins with the treatment and analysis of each university conference center individually. It then addresses each university conference center collectively, providing inter-university comparisons, analyses, and syntheses with respect to the four research questions posed by this study. It concludes with a summary of the findings and answers to the four primary research questions of this study.

Table 4.1. Summary of secondary sources of information.

University	Secondary Sources of Information
A	<ul style="list-style-type: none"> • Market study and feasibility analysis performed by hospitality consultant • Request for Proposal (RFP) for hotel and conference center management services • Sales brochures • University mission and vision statements • Text of speeches delivered by University President regarding new hotel and conference center • Alumni Association news magazine article • University fundraising campaign information posted on Internet
B	<ul style="list-style-type: none"> • Pricing book for pooled revenue bonds and bond covenant prepared by bank
C	<ul style="list-style-type: none"> • Hotel and conference center information posted on Internet • Additional secondary information unavailable
D	<ul style="list-style-type: none"> • Sales brochures • Memoranda • Auxiliary services departmental analysis and projection • Market study performed by hospitality consultant • Pro forma produced by management company • Request for Proposal (RFP) for professional property management and hospitality services program
E1	<ul style="list-style-type: none"> • Copy of presentation to foundation Board of Directors by realty consultant • Mission statement • Cash flow projections, with and without additional debt principle payments from cash flows • Smith Travel Research benchmarking statistics of “peer” hotels: operating income and expenses
E2	<ul style="list-style-type: none"> • Mission statement • Smith Travel Research benchmarking analysis • Statistics of “peer” hotels: number of rooms, average rate, segment, age • Analysis of real estate appraisal

CONDENSATION OF INTERVIEW ITEMS

In Chapter Two, the literature review identified important concepts and variables to be measured during this investigation. Table 2.4 summarized these concepts and variables and indicated the operational measures of these items. Similarly, Table 3.2 revealed a summary of interview questions in the case study protocol. Both of these lists of operational questions proved to be too long for interviews. Because the university officials targeted for interviews are unable to commit more than one hour at a time for an

interview, the question list was condensed to fit into a one-hour block. While some items identified in the literature review were edited out of this investigation, they were omitted consistently across all cases. For instance, the literature review revealed five important components of Pillar One. Time prevented the researcher from covering all five components in detail during the interview. Therefore, interview questions were condensed to capture two of the components, life cycle and cash flow. In all cases, the remaining three components were omitted. Table 4.2 compares the components of each pillar identified in the literature review to the actual operational measures used during data collection. This condensation of operational measures is considered a limitation of the study. However, the research gave close care to applying these operational measures consistently across all cases.

Table 4.2. Condensation of research concepts into operational measures.

Pillar One Components	Condensed to
<ul style="list-style-type: none"> • Competitive position • Critical success factors • Life cycle • Cash flow forecast • Expected value analysis • Value drivers 	<ul style="list-style-type: none"> • Estimated life span • Method for estimating life span • Projected cash flows • Method for projecting cash flows • Value drivers
Pillar Two Components	Condensed to
<ul style="list-style-type: none"> • Capital structure • Cost of debt • Cost of equity • The tax decision • Risk influence • Risk-free rate • Project-based or Adjusted Present Value 	<ul style="list-style-type: none"> • Capital sources for facilities projects • General cost of capital for facilities • Capital sources for conference center • Expected rate of return • Method for estimating cost of capital/expected return
Pillar Three Components	Condensed to
<ul style="list-style-type: none"> • Operating leverage • Financial leverage 	<ul style="list-style-type: none"> • Definition of risk • Estimation of cash flow variance • Addressing cash flow variance
Pillar Four Components	Condensed to
<ul style="list-style-type: none"> • Capital outlay required • Evaluating quality and life of investment materials • Determining state of the art technology and materials • Skill at locating materials 	<ul style="list-style-type: none"> • Capital outlay required • Method for estimating capital outlay • Estimated life span • Method for estimating life span

UNIVERSITY A

University A is a rural land-grant university surrounded by a college town of approximately 40,000 residents. With 26,000 students, the university focuses on

teaching, research, and outreach. In 1968, University A opened a center for continuing education on its campus. With 128 guestrooms and more than 17,000 square feet of flexible meeting space, the hotel and conference center has been able to reach markets outside its original continuing education focus. Recognizing the need to reach additional markets, the university changed the facility's name from a continuing education center to a hotel and conference center in 1993. The university continues to manage the hotel and conference center through its auxiliary services division, but plans to shift its operations to a new facility on campus by 2004. Currently in the planning phase, the university's new hotel is expected to contain 150 guestrooms. The new 50,000-square-foot conference center is designed to have 12 conference rooms and a 740-seat ballroom. The entire facility will host a 125-seat restaurant, two private dining rooms, and an alumni center with a 140-seat auditorium. University A views the new hotel and conference center as a hospitality facility that will allow the institution to host a variety of guests from educational and business conference groups to potential donors and granting agencies to alumni and parents. It is this new hotel and conference center that is the focus of the case study at University A.

Presently, the current hotel and conference center director, who works for the university's auxiliary services, reports to the university's Director of Continuing Education. In addition, the hotel and conference center maintains a close working relationship with the university's department of hospitality and tourism management (HTM). The HTM department occupies kitchen and restaurant space in the hotel and conference center, using the facility as a hands-on food preparation and food service laboratory. The academic department also uses the hotel and conference center for lodging and meeting courses. University officials expect the hotel and conference center reporting structure and the HTM relationship to remain intact. However, ongoing negotiations will determine whether the new facility will use an external management company or retain its current auxiliary staff. Key variables influencing that decision are furniture, fixtures, and equipment (FF&E) reserve strategy; service quality, customer satisfaction, and reputation; and potential impacts on bottom-line financial performance.

Pillar One: Estimate cash flows over the life cycle of the project

To determine the feasibility of the new hotel and conference center project and to develop expectations of future cash flows, University A employed an outside consulting firm to conduct a market study. Based on regional supply and demand factors, the consultant projected occupancy rates and average [daily] rates, income, and expenses. The following assumptions about the facility went into the consultant's cash flow estimates:

- First-class, full-service hotel with the latest in amenities and technology, as well as high-quality furnishings, fixtures, and finishes
- Recommended lodging room count of 125, with a mix of 48 rooms with king beds, 72 units with two double beds, and 5 suites
- Guestrooms measuring roughly 300 square feet
- A 125-seat, casual restaurant serving breakfast, lunch, and dinner
- Approximately five small dining rooms

- Ballroom large enough to seat 600 persons banquet-style
- Roughly 18,000 square feet of flexible meeting space
- Six conference rooms, five breakout rooms, two boardrooms, an amphitheater with approximately 80 seats, and a computer lab

Using occupancy and room rates as primary building blocks for the cash flow projections, the consultant estimated revenues and expenses of the hotel and conference center for the fiscal years 2003/04 and 2004/05, as well as a third, “stabilized” year. According to the consultant’s report, “The stabilized occupancy reflects the anticipated results of the property over its remaining economic life, given any and all changes in the life cycle of the hotel. After a hotel achieves its stabilized occupancy, room rates are generally expected to continue to increase at the underlying inflation rate throughout the remainder of the projection period.” Using these assumptions, the consultant then constructed a ten-year forecast of income and expense for fiscal years 2003/04 to 2012/13.

The consulting company’s market study report made the following comments about the methodology employed to project future cash flows:

The forecast of income and expense for the proposed subject property is expressed in current dollars for each year. The stabilized year is intended to reflect the anticipated operating results of the property over its remaining economic life, given any or all applicable stages of build-up, plateau, and decline in the life cycle of the hotel. Thus, income and expense estimates from the stabilized year forward exclude from consideration any abnormal relationship between supply and demand, as well as any nonrecurring conditions that may result in unusual revenues or expenses...In arriving at projections, [*consultant’s name omitted*] uses a model that is based on the premise that hotel revenues and expenses have one component that is fixed and another that varies directly with occupancy and facility usage. A forecast can be made by taking a known level of revenue or expense and calculating its fixed and variable components. The fixed component is then held constant, while the variable component is adjusted for the percent change between the projected occupancy and facility usage and that which produced the known level of revenue or expense. (Page 63)

The consultant used historical operating income and expense figures of the current hotel and conference center property as a base for the new facility’s cash flow projections. Where applicable, the consultant reorganized the statements in accordance with the Uniform System of Accounts for Hotels. In addition, the consultant calculated the investment value and the investment cost of the hotel and conference center using a discounted cash flow and income capitalization procedure.

Interviews with three executives at University A revealed that the university was not satisfied with some of the consultants’ assumptions and recommendations. Since the initial feasibility report, the university has changed several assumptions about the hotel and conference center. One of the most important concerns for the planning team has been capturing the ongoing nature of hospitality business at the University. Because the

University has operated a hotel and conference center on campus for 33 years, officials believe that the already-established business will impact the revenue projections for the proposed facility (an assumption they feel was not reflected in the consultant's original projections). Further, officials believe that the new hotel and conference center will achieve a higher occupancy and will be able to support a higher room rate than the consultant originally targeted because of the university's reputation. Officials believe that the hotel and conference center at the university will be "THE place to stay" when visiting the university. Additionally, the size of the proposed hotel has increased and the price of the hotel has changed since the initial market report. The new assumptions about the hotel and conference center include:

- 150 lodging rooms
- 125-seat restaurant
- two private dining rooms (totaling 50 seats)
- lobby bar, that also serves as a coffee area in the mornings
- 740-seat ballroom
- 140-seat auditorium, with fixed tables for 100 people
- 12 conference rooms

With the new assumptions in hand, managers at the current hotel and conference facility on University A's campus revised the consultant's projections. Executives created multiple financial scenarios, using numerous permutations of input variables. Assumptions for a ten-year financial report were developed then were applied to historic (1999/00) operations. This resulted in a financial statement that included the historical fiscal years 1995/96 to 1999/00 and the future fiscal years 2000/01 to 2003/04. In this way, the team produced financial projections that they believed best reflected the hotel and conference center's future cash flow stream. University administrators did not repeat the consultant's discounted cash flow and income capitalization procedure since, according to one respondent, that would have been the "wrong" metric. He indicated the correct metric to measure the success of this project to be programming items (number of rooms, capacity for continuing education programs, restaurant size, etc.). Since programming considerations are the goals for this facility, the financial planners chose the scenario that would allow them to reach their programming goals.

Pillar Two: Determine the project's cost of capital

In the past, University A has used debt, private contributions, auxiliary contributions, and state general funds to finance facilities projects. Normally, the University's cost of capital is approximately 6%. This cost depends on economic conditions, the purpose of the facility, and capital structure of the project. To finance the new \$33.6 million hotel and conference center project, the university expects to receive bond proceeds, private contributions, auxiliary contributions, and proceeds from the sale of the current hotel and conference center to another department within the university. A breakdown of the financial structure of University A's new hotel and conference center appears in Table 4.3. The estimated cost of capital for this project is 5.7%, which is based on the current, actual cost of debt for University A.

Table 4.3. Financial structure of University A's new hotel and conference center project.

Source	Percentage of Total
Tax-exempt revenue bond proceeds	60.13%
Proceeds from sale of current H&CC	19.72%
Private contributions (fundraising)	18.65%
Auxiliary contributions (reserves)	1.49%

Total projected cost: \$33,613,000

When estimating the university's cost of capital, officials at University A consider only the cost of debt. Equity contributions in the form of private donations are viewed as free, meaning they carry no inherent rate of return requirements. Furthermore, the opportunity costs associated with equity contributions are ignored. Therefore, the cost of equity is not used to calculate the cost of capital.

University planners have not calculated a hurdle rate for the new hotel and conference center. However, the hotel and conference center project must meet several explicit goals. The facility, like other auxiliaries, is expected to be self-sufficient. This means that it must cover its own operating expenses and debt service, as well as contribute to an FF&E (furniture, fixtures, and equipment) reserve. In a market study, the consultant employed by the university factored this "replacement reserve" into the proposed facility's expense projections at a rate of 4% of total revenue per year.

Pillar Three: Identify and manage risk issues

The officials interviewed at University A have discussed and articulated several types of risk that are influencing their new hotel and conference center plans. Those types of risk are:

- Inflationary risk, which is associated with the length of time it takes to move a project of this magnitude from initial approval of the project cost to its bid. A bid contingency has been established for this project to help mitigate this type of risk.
- Capital campaign risk may occur if fundraisers are unable to meet the campaign goal. A contingency plan to reduce this type of risk would be to have the university's foundation provide an advance of unrestricted private funds until such time as the fundraising goal is met.
- Forecasting risk involves unforeseen changes to the assumptions supporting the financial feasibility plan. Examples of assumptions are number of room nights, room rates, interest on debt, amount of conference business, etc. Related to forecasting risk is operational risk, which is the risk that the facility will not generate the revenues projected in the feasibility plan. Any shortfalls occurring because of forecasting and operational risks may be offset by draws from the conference center's operating reserves.

- Interest rate risk is associated with economic conditions. When financing a conference center, university officials want to issue debt at a time when interest rates are as low as possible, to control the cost of the project. University A's debt managers keep a close eye on interest rates to develop an understanding of interest rate fluctuations and patterns. They may use conservative interest rate estimates, within a reasonable range, to mitigate some of the interest rate risk.
- "Reputational" risk. By hosting people in its own hospitality facilities, the university subjects its reputation to the scrutiny of guests. Each guest may make a judgment about the university's character based on his or her personal experience at the hotel conference center. A good experience bodes well for the university, while a bad experience might damage the university's reputation. Reputational risk is an important consideration in the university's decision to self-operate the conference center or to employ an external management company.

Pillar Four: The investment(s)

The estimated capital outlay required for University A's new hotel and conference center is \$33,613,000. Before arriving at this estimate, the project's planning committee held a series of "programming conversations" with stakeholders to determine the specifications for the facility. Stakeholders included leaders from the continuing education division, the alumni association, auxiliary services, various academic departments, and various business departments within the university. These stakeholders let the university planners know exactly what they need in the facility, including the number and size of lodging rooms and meeting space, the specifications for food and beverage outlets, and the level of amenities. With these programming needs in mind, the university planners obtained layout designs and cost estimates from the University Architect and from the university's Capital Design and Construction office.

During the programming considerations and cost estimates, the university also employed an outside consultant to conduct a market study. Gathering information about local and regional supply and demand factors, the consultant prepared revenue and expense projections and made recommendations on the feasibility of the conference center project. As mentioned earlier, the university expects to use bond proceeds, private contributions, auxiliary contributions, and proceeds from the sale of the current hotel and conference center to another department within the university to finance the \$33 million project.

Two respondents at University A indicated that a hotel conference center, like other buildings on campus, is expected have a physical life of 50 to 100 years. This estimate, provided by the University Architect's office, is based on institutional history and knowledge. However, the third respondent estimated the hotel/conference center's life span at 35 to 50 years. He also mentioned that, at 35 years, a hotel conference center would need major refurbishment.

UNIVERSITY B

University B, like University A, is located in a rural small town, on a 255-acre campus. The public university educates over 12,000 undergraduate students and over 1,000 graduate students. University B owns and operates its own hotel and conference center, which was built in the early 1970s as a center for continuing education. Responding to market forces over the years, the hotel and conference center now serves a variety of customer groups. Like the continuing education center at University A, the continuing education center at University B changed its name within ten years of its opening to “Inn and Conference Center” to reflect the nature of its business better. The majority of the facility’s business (62%) comes from conferences, while the remainder (38%) comes from transient guests. Of the conference business, only 22 percent is university-related. Most (52%) of the conference business is generated by state agencies. Corporations generate ten percent (10%), associations generate ten percent (10%), and other organizations generate the remaining five percent (5%) of group business.

Operated by the university’s College of Business, the hotel and conference center has 83 newly furnished guestrooms, 10,000 square feet of exhibit space, and 20,000 square feet of meeting space with 22 meeting and breakout rooms. The full service hotel offers a ballroom, dining room, lounge, and room service.

Because of the age of University B’s hotel and conference center, much of the information included here regarding the initial financing of the hotel has been passed on orally from former university employees to the respondents. Written documentation regarding the original deal was unavailable. As a result, some of the results for this case study are inconsistent or incomplete. To supplement the respondents’ knowledge of historical financing decisions, interview questions also examined the university’s recent investments (renovations) in its hotel and conference center.

Pillar One: Estimate cash flows over the life cycle of the project

Information regarding initial cash flow estimates for University B’s hotel and conference center was unavailable. Both respondents interviewed for this case study were not positive that a feasibility study was conducted for this project. One respondent doubted the existence of a feasibility study, since the facility’s original purpose was to serve as a continuing education center and not to produce revenues for the university.

The current operating director was able to offer some insight into how future cash flows might be estimated today, based on his own experience with a recent refurbishment, completed in April 2000, of all guestrooms and guest wings in the facility. In order to receive funding through the university for renovations, the director did not need to develop a ten-year pro forma highlighting the benefits of the changes. Rather, he expressed the benefits of renovations in terms of increased sales for the hotel and conference center. His assumptions were:

- Sales would remain constant. The renovated rooms would have more appeal to certain markets not served previously, but would drive away some of the “lower-end” market segment.
- Any increased costs in delivering the guestrooms because of better amenities, etc. would be negligible.
- The debt service divided by the number of rooms would equal the necessary increase in room rates. The hotel and conference center increased its room rates by \$15 per night.
- The renovations would be self-sustaining; the increased revenue would cover the debt service and any incremental costs.

The director knew from experience approximately how much the renovations would cost. With his and an architect’s estimates, the university submitted a Request for Proposal (RFP) for cost estimates from contractors. With these estimates and justifications, the director was able to secure a \$1.5 million bond issue to proceed with renovations. Room sales increased 29% for the year following the renovations, resulting in a \$240,000 revenue increase.

Pillar Two: Determine the project’s cost of capital

Respondents from University B indicated that the original cost of the bond issue to finance the conference center was approximately 5.5%. This debt was retired around 1997. The recent bond issue covering the \$1,429,548¹ renovation costs has an interest rate of approximately 6% (according to one respondent). According to a report from the bank helping to issue the bonds, the \$1.59 million bond issue has a True Interest Cost (TIC) of 5.36%. Aside from the charge to maintain break-even operations, University B’s hotel and conference center has no rate of return requirement beyond covering debt and operating expenses.

Pillar Three: Identify and manage risk issues

Because the two respondents at University B were not involved with the initial financing and deal structuring of their hotel and conference center, they were not able to speak to the specific risk issues discussed during the planning phase. They mentioned several types of risk associated with the current operations of the facility:

- Weather risk. Because of the conference center’s location in a mountainous, rural town, guests often perceive transportation to and from the conference center is difficult in the winter months (they do not want to get snowbound at the conference center). As a result, the conference center’s business is highly seasonal, with high summer and fall business and low winter business. Weather can present a risk in the summer as well, if the temperatures in the lowlands do not rise high enough to drive tourists into the highlands, where the hotel and conference center is

¹ Plus interest earnings

located. To combat weather risk, the hotel and conference center markets to special groups like skiers and structures its rates to stimulate demand in the off-season.

- Economic risk. Much of University B's hotel and conference center business comes from state agencies. When the state reaches a recession, the governor and the state's administrators cut state agency budgets. This reduces the demand from state agencies for the hotel and conference center's services. To compound the matter, the state-owned hotel and conference center is not able to reduce labor costs by laying-off its state employees, as the private sector might do.
- Competition. As the supply of hotels increases near University B, its hotel and conference center faces increasing competition for customers. As one of the few full-service hotels in the region, University B's hotel and conference center offers a range of products and services that its competitors do not offer. However, the university hotel and conference center cannot compete with other hotels on price.

Pillar Four: The investment(s)

Prior to 1970, a wealthy family donated a modest sum of money to University B to build a faculty center on campus. The money was not used immediately for a faculty club, but around 1972 the gift was combined with some debt to leverage the construction of a continuing education center. A faculty club was housed in the continuing education center for some time, but was later removed. According to one respondent, the continuing education center was built with a small gift (\$100,000-150,000) and self-liquidating bank debt, which was to be paid back with operating receipts. However, the other respondent indicated that the center was financed with a larger gift (\$500,000) and a municipal bond (\$2.5 million at ~5.5%), which was retired around 1996/97.

In the early 1990s, the university added a 7,500-square-foot ballroom to the facility. Those involved at the time did not finance the ~\$750,000 addition. Without the existence of an operating reserve fund, they used cash to pay for the refurbishment, believing the ballroom would pay for itself. In reality, the ballroom did not cover its costs, but instead created a deficit. The current director has managed to reduce the deficit to below \$200,000. However, he does not have an operating reserve to fund current maintenance or renovation needs.

Without an operating reserve to fund recent renovations, the university financed the refurbishment of the conference center's 83 guestrooms with a \$1.59 million bond issue at approximately 5.4%. Knowing that renovations would be needed again in a short time, the university chose a relatively short maturity of 15 years² for the bonds.

² A 15-year maturity was reported in a written bond covenant. However, one respondent indicated that the maturity is 17 years.

One respondent at University B indicated that the life span of the hotel and conference center could be infinite (or at least as long as the university could “keep it going”). The other respondent said that the life span of the hotel and conference center could be viewed as the length of time over which the Internal Revenue Service (IRS) allows the university to depreciate the building. According to him, the IRS allows hotels to depreciate their buildings over 41 years and motels to depreciate their buildings over 31 years. He said that University B’s hotel and conference center depreciative life falls between those two categories.

UNIVERSITY C

Located in an urban area on a 110-acre campus, University C supports nearly 6,500 undergraduate students, 3,300 graduate students, and 2,700 students in professional programs. The private, Christian-affiliated university constructed its hotel and conference center in 1989 as a venue for hosting conferences and meetings associated with the university’s medical center and hospital. Since the opening of the conference center, the university has sold its hospital (which, with a large receivables account, was a major financial drain on the university), but has maintained its relationship with the medical center. As a result, the hospital is no longer a major customer of the hotel and conference center.

The university’s hotel and conference center, currently operated by an external management company with a flag, adjoins a student center, administrative offices, and student dining facilities. The university’s Associate Vice President for Auxiliary Services oversees the management contract and works closely with the management company to insure that the hotel and conference center operate smoothly. University C’s hotel and conference center boasts 145 guest rooms; a large ballroom with the capacity to seat 980 people banquet-style; 13,000 square feet of meeting space with five conference rooms and an elegant boardroom; and three restaurants, a pub, and a food court.

Only one person was available for an interview at University C. As the Director of Finance and Investments at University C, the respondent has two responsibilities during capital projects like building a conference center. First, he is part of the committee planning process. In addition, his office performs the financial analyses for each capital project. To do this, employees in the office determine future operating costs from experts “on the front lines,” then plug the numbers into financial models. They allocate a cost of capital to the project, then let the decision makers know what the potential return for the project is.

The situation at University C is similar to the situation at University B, in that the leaders responsible for structuring the hotel and conference center deal no longer work at the university. The respondent at University C was able to speak to his own knowledge of the history of the hotel and conference center, but was not able to offer first-hand experience. He did, however, explain how the university might finance a conference center if it were building one today.

Pillar One: Estimate cash flows over the life cycle of the project

Several feasibility studies were conducted for the hotel and conference center project at University C, but those documents were unavailable for this study. A consulting company may have conducted revenue projections, but the respondent believed that the management company selected to operate the facility performed the bulk of the projections. According to the respondent, the revenue projections were far more aggressive than they would be now if the university were considering a similar project today. In addition, he indicated that, since the management company's interests and the university's interests are not perfectly aligned, the university probably would not have the vendor perform the revenue projections today.

At the time of the conference center's planning, the university did not pay attention to "cash flow," *per se*, but to "income" as a performance metric. Today, according to the respondent, the university views "cash as king," assessing projects on a cash flow basis. Because of lessons learned with the hotel and conference center and other previous projects, the university now performs its own cash flow analyses using Monte Carlo simulations and other scenario examinations. According to the respondent, scenario analysis of capital projects is one of the larger weaknesses at University C. Because no one at the university has in-depth expertise at estimating the volatility of major costs in specific areas like concrete, milk, or other supplies, the accuracy of revenue and expense projections is, at times, questionable. He acknowledged that this can be the case at corporations as well, saying, "If the input is crap, it doesn't matter who makes the projection." The respondent indicated that his financial planning staff runs capital project scenarios for thirty years into the future, but does not "put stock" in anything past ten years. Now, with uncertainty surrounding capital decisions and operating environments, he questions the reliability of analyses that reach beyond five years.

Pillar Two: Determine the project's cost of capital

The hotel and conference center at University C was financed with a small private gift and with debt. While the respondent was unsure of the actual cost of that debt, he indicated that the university uses a cost of capital equaling the current 10 to 30-year tax-exempt municipal bond rate. Currently, that rate is approximately 5%. They then add a risk margin of 0.5%, bringing the cost of capital to around 5.5%. In the past, the university has looked at private gifts with an opportunity cost of about 10%. However, because including the endowment cost inflates the cost of capital, the university no longer allocates the cost of capital to gift funding for psychological reasons.

In the planning stages of the hotel and conference center, the university officials expected the hotel and conference center to cover its debt service and operating expenses at a hurdle rate in excess of 6-6.5%. However, due to the medical center's drain on revenues, the hotel and conference center has not been able to achieve that goal. Some of the original debt has been retired and some has been refinanced and converted to a

variable rate. Nevertheless, the main campus of the university is subsidizing the hotel and conference center operations at this point.

Pillar Three: Identify and manage risk issues

The respondent at University C discussed several kinds of risk that the university faces with the initial phases of capital projects:

- Forecasting risk: the possibility that cash flow projections are inaccurate. Scenario analysis risk is related to forecasting risk. The accuracy of assumptions and the vigor of analyses contribute to the quality of projections. Adding several basis points to the cost of capital cushions some of this risk.
- Market risk, due to the time it takes to move a project from the initial planning to the financing and construction phases. Interest rates and construction costs may fluctuate during this time. Adding several basis points to the cost of capital also cushions some of this risk. At University C, the financial planners build in approximately 100 basis points to cushion the accuracy of cash flow projections and changes in market conditions.

Pillar Four: The investment(s)

The initial capital outlay required for University C's hotel and conference center was approximately \$51 million. This includes the cost of a parking garage and common spaces shared with the adjacent student center. The respondent indicated that the actual construction costs were considerably higher than the initial cost estimates. During the building phase, the university hired an outside consultant to manage cost overruns and fix other problems associated with the construction. The mistakes made during this phase ultimately cost the vice president in charge of the project his job.

Based on his experience with hotels and campus buildings, the respondent indicated that the life span of University C's hotel and conference center probably is around thirty years. He mentioned that the university could issue forty-year debt on a similar building and that accountants depreciate the building over fifty years.

UNIVERSITY D

In 1991, University D purchased a retirement home from a private developer and converted the building into a multiple-use facility that includes student apartments and a hotel and conference center. Currently, an external management company operates the entire facility with a flag. Similar to owner-operator relationship at University C, the Associate Vice President for Auxiliary Services at University D oversees the hotel-conference center-residence hall management contract. The hotel and conference center

portion of the facility houses 103 deluxe suites, 11,000 square feet of meeting space with 19 flexible meeting and conference rooms, a restaurant, and a pub.

University D hosts approximately 13,900 undergraduate students and 2,800 graduate students on its 321-acre, suburban campus. With forty undergraduate majors, the public university focuses on teaching rather than on research. The majority of the hotel and conference center's business (85%) is attributed to local, corporate, and social customers, while only a small portion of its business (15%) is generated by the university itself.

Pillar One: Estimate cash flows over the life cycle of the project

To determine the feasibility of the new hotel and conference center project and to develop expectations of future cash flows, University D employed an outside consulting firm to conduct a market study. Based on an analysis of the site and surrounding area, a review of the markets available to the proposed center, and an analysis of the overall competitive environment, the consultant estimated demand and associated utilization rates and rate structures for the first five years of operation, assumed to commence in early 1993. The following assumptions went into the consultant's estimates:

- The conference center wing of the facility will include approximately 5,200 square feet of dedicated meeting space consisting of a large meeting room divisible into two sections and seating up to 75 people theater-style, five other conference rooms seating from 25 to 40 persons, and four breakout rooms;
- Recommended conference dining room of approximately 140 seats including the capability for provision of private dining;
- Recommended recreation lounge/pub for conferees and other hotel guests;
- Use of Complete Meeting Package (CMP) pricing approach;
- 106 guest suites, which represents approximately half of the available units at the facility (the remaining rooms would be used as student residences);
- The overall potential for group meeting demand from within the defined market area requiring overnight accommodations, combined with University generated and other types of transient demand
- The size of the guest room component at other somewhat comparable university residential conference centers, taken in the context of typical extended periods needed to reach stabilization for larger properties,
- The selection of a reasonable minimum number of guest units to allow for flexibility in scheduling multiple conferences requiring overnight accommodations, and to provide reasonable opportunity for coverage of fixed costs of the operation of the Center

Based on the consultant's feasibility study, projected pre-opening costs, and a capital outlay budget, the selected external management company developed a pro forma for the conference center. This two-year pro forma, for years 1993 and 1994, several projections for three potential permutations of the facility, including (1) residential

leasing only (2) conference center only with 106 guest rooms, and (3) conference center only with 55 guest rooms. The following assumptions were used for the pro forma:

- The conference center will come on-line April 1, 1993.
- The parking deck will be constructed July 1, 1993.
- Utilities for the property, which currently run approximately \$150,000 annually, will be borne directly by the University and, therefore, and not included in the pro forma numbers
- Occupancy percentages for the 106-room scenario will be 35% for the first year, and 46% for the second year. For the 55-room scenario, occupancy percentages will run approximately 5% less, due to the fact that marketing efforts will be constrained to smaller groups.

Pillar Two: Determine the project's cost of capital

Typically, University D issues non-taxable bonds through the state to finance academic buildings or through the state's university system to finance auxiliary buildings. The university system issued a 20-year, 6.41 percent, \$16,850,000 bond to finance the purchase of University D's conference center project. According to one respondent, the bond issue consists primarily of tax-exempt bonds, but may include some taxable bonds because of the building's use. The other respondent indicated that the entire bond issue is taxable. A third source, a written communication from the former Associate Vice President for Auxiliary Services, indicates that the debt is non-taxable.

The officials at University D have not stated explicitly a required rate of return for the hotel and conference center. The facility is expected to contribute to the "fund balance," that is, it is expected to cover its debt and operating expenses and is hoped to return some money to the university.

Pillar Three: Identify and manage risk issues

The respondents at University D indicated that several types of risk influence capital projects:

- Cost of debt. The state in which University D operates manages the cost of debt for academic facilities. The state university system manages the cost of debt for auxiliary buildings. Debt for academic buildings is recorded on the state's books rather than on the university's books, but debt for auxiliary buildings is carried on the university books. The state's debt managers monitor interest rates and maintain a high credit rating.
- Time. Going through the state queue to obtain funding for capital projects takes a long time. Very often, project managers must estimate project costs three to five years in advance. In the time between estimating costs and obtaining funds, assumptions and market conditions may change. One respondent at University D indicated that he prefers to "put something together" over several years and to use operating funds for certain capital projects instead of "going through the state hoops" to obtain funds.

In its feasibility report, the independent consulting firm mentioned several other forms of risk associated with this project:

- Evolving nature of events. “Our report and estimated results are based on estimates and assumptions which are inherently subject to uncertainty and variation depending upon evolving events. Some assumptions inevitable will not materialize and unanticipated events and circumstances may occur; therefore, actual results achieved during the period will vary and the variations may be material.
- Managerial risk. “We did not evaluate the effectiveness of management and we are not responsible for future marketing efforts and other management actions upon which actual results will depend.”
- Regulatory risk. “No effort has been made to determine the legal and regulatory requirements applicable to this project, including zoning, other state and governmental regulations, permits, and licenses. Furthermore, no effort has been made to determine the possible effect on this project of present or future governmental legislation relating to environmental or ecological matters or interpretations thereof.”

Pillar Four: The investment(s)

University D purchased its conference center facility in 1991 from a private developer for \$16,850,000. Originally constructed as a retirement home, the building was converted to residential apartments, lodging suites, and meeting facilities. Officials at the university had hoped to buy the building at auction in order to receive a lower price. However, there was concern that this action would be viewed as taking unfair advantage of the university’s public sector, non-profit status. In the interest of fairness and public relations, the university purchased the building directly from the developer.

There is some conflicting information regarding the purchase price of the facility. In a 1990 letter to University D’s President, the private developer offers to sell the building for twenty million dollars. That amount was to include the finishing carpets, appliances, etc. of the 202 apartment units in the building. A subsequent letter from the President to the Chancellor confirms the twenty million dollar sale price as well as introduces a reduced price of \$19,800,000 for the building without the renovations. One respondent said that the purchase price was \$16,850,000 and provided a memorandum from the state’s university system indicating that same amount on a bond issue designated for the building. According to this respondent, the price was determined using the professional appraisers’ method required by the state’s procurement regulations.

UNIVERSITY E

Located in a suburban area on a 1,133-acre campus, University E accommodates 13,700 undergraduate students, 7,100 graduate students, and 1,600 students in

professional programs. The university's foundation owns several hospitality facilities, two of which were studied for this project. The first facility, known here as facility E1, is situated on 573 rural acres outside the university's core campus. As the property was contiguous to the university's golf course and other properties, the university purchased the facility (through the foundation mechanism) when the opportunity arose in 1989. Another factor driving the purchase of the resort was its potential for becoming the university's primary conferencing facility. The university intended to purchase the resort then ground-lease it to an external management company willing to absorb the operating risk. However, a drop in the real estate market in the late 1980s forced the university to take full responsibility for the financial and operating risks. The university purchased the facility in 1989 and hired a management company to operate it. Citing cultural differences between the out-of-state management company and the local community, the university's foundation regained operational control of the resort in 1990.

As a resort, E1 boasts an 18-hole golf course, sports club, and spa in addition to its 171 guestrooms and three restaurants. Advertising 11,000 square feet of "uncommon space," the resort has a 3,300-square-foot ballroom, 14 flexible meeting rooms, and 11 private function rooms. Purchased by the university's real estate foundation in 1989 for its real estate value, the resort was managed externally for a year. Currently, the resort enjoys a customer mix of approximately 40% transient business and 60% group and corporate business.

The second hospitality facility associated with University E, known as facility E2, is a hotel conference center located at the edge of the suburban university's core campus. Built in 1965 then purchased and renovated by the university's foundation in the late 1990s, the hotel sits on approximately 1.7 acres, contains 118 guestrooms, and boasts 4,000 square feet of flexible meeting space. . At the time of the hotel's purchase, the university foundation was hoping to acquire real estate near the university and was looking at several potential properties to purchase. Simultaneously, the hotel's owner was wishing to sell the property, which is surrounded on four sides by the university. The foundation purchased the property with the idea of eventually demolishing the hotel and converting the land to an alternative use. During initial renovations of the hotel, the foundation approached the university's Conference Services division about assisting financially with the renovations and becoming a resident in the building. Conference Services built six meeting rooms and a catering kitchen, which the division now manages. An external management company (without a flag) operates the lodging portion of the facility and uses a franchised name. The management company of this facility and the general manager of E1 both report to the university foundation's Director of Asset Management.

Pillar One: Estimate cash flows over the life cycle of the project

Future cash flow estimates for resort E1

No information regarding cash flow projections of E1 was available.

Future cash flow estimates for hotel E2

A hard copy of a Power Point presentation delivered by a realty consultant to University E's foundation board indicates that the consultant developed a ten-year pro forma to determine the "market" justification for the proposed purchase price of hotel E2. One interview respondent estimated yearly revenues were projected at \$600,000-700,000. The consultant's actual pro forma was not available for this case study, but the presentation provides a summary of the analysis. Assumptions of the financial analysis were:

- Projected first year occupancy of 67 percent, increasing to 69 percent in year three and thereafter
- Projected first year average daily room rate of \$61.19, increasing at 2.5 percent per annum
- Projected first year net operating income of \$634,000
- Projections of other revenues and expenses based on historic operating results of the property

With these assumptions, the consultant calculated the net present value of projected pre-tax cash flows using discount rates of 9.0% (NPV=\$6.3M), 10% (NPV=\$5.9M), 11% (NPV=\$5.5M), and 12% (NPV=\$5.2M)³. These values were calculated on cash flows before debt service and depreciation, but after preliminary projection of capital expenditures (preliminary projection of \$1.7 million over a ten-year period). The cash flow projections did include the projected residual value of the property in year ten.

Pillar Two: Determine the project's cost of capital

According to one respondent, University E's foundation uses a cost of capital of LIBOR plus 50. The foundation uses lines of credit at two banks, both of which carry the LIBOR plus 50 rate. Monies from these lines of credit are used for construction and renovation loans.

Cost of capital for resort E1

To fund the purchase of resort E1, University E disinvested a portion of its unrestricted endowment funds. This was a non-interest-bearing loan that constituted much more than 25% of the capital structure. Approximately \$10 million came from a Sallie Mae loan at LIBOR plus 60 and a very small portion came from the assumption of an outstanding loan from an insurance company.

³ For the scenario analysis (reported under Pillar Four: The investment), the consultant's report indicates the use of \$2.1 million in pre-tax, operating cash flow over the ten-year holding period to calculate the net present value of Alternative One.

University E expects a rate of return higher than 8% on its endowment funds, which were a large source of financing for resort E1. Nevertheless, several factors influenced university officials to lower their expectations for resort E1. To purchase the property in 1989, the university exercised an option upon the owner's death. This price, established and set by contract at the height of the market in 1985, may have been considered excessive when the market dropped in 1989. In addition, maintenance costs for the "rambling" facility with primarily wooden buildings traditionally run high. Given the high purchasing and maintenance costs of the resort, university officials felt an 8% expected annual return on resort E1 was reasonable. While the resort has not met this goal yet, the foundation is developing a strategic plan to increase its returns.

Cost of capital for hotel E2

The purchase of hotel E2 at \$6.7 million in 1999 was financed completely with bank debt at LIBOR plus 50, backed by a comfort letter from the university⁴. Later, the loan was put into an interest rate swap that fixed the rate. The foundation is preparing to refinance hotel E1 and another hotel by purchasing a letter of credit from a bank and issuing \$50 million worth of bonds at LIBOR plus 75. At that point, the comfort letter will come off of the previous loan. The rate of LIBOR plus 75 was determined by the bank's examination (due diligence) of the foundation's ability to repay the debt and by the bank's assumption of liens on the two hotel properties.

Pillar Three: Identify and manage risk issues

Risk associated with resort E1

When University E decided to purchase resort E1, it had hoped to ground lease the facility to an external manager. The lessee would have managed the facility and would have paid the university rent based on the value of the property and on operating receipts. The lessee would have had complete discretion over the facility's operations and upkeep. This arrangement transfers a large majority of the operating and financial risks to the lessee. In 1989, when the university purchased the resort, the real estate market dropped. The university could not find any operator willing to take the risk associated with a ground lease, so the university was forced to absorb all of the financial risk. The university paid an out-of-state management company to run the facility for a year then decided to bring the resort back into local operation.

⁴ The comfort letter implied that the university would back the foundation financially if the foundation were to default on its loan. This implicit backing serves to reduce the bank's perception of risk and lower the foundation's cost of debt.

Risk associated with hotel E2

According to one respondent, University E's foundation board members did not discuss risk in detail during the financing and purchasing stages of hotel E2. With regard to potential variances in future cash flows, the board indirectly managed risk by assuming conservative revenue growth.

The respondent indicated that, during the financing discussion, the board debated the advantages and disadvantages of assuming variable-rate and fixed-rate loans⁵. The foundation assumed a variable-rate loan then placed it into an interest rate swap to fix the rate. In the respondent's words, "We're dealing with university [money]. We can't afford to make a mistake."

Pillar Four: The investment(s)

Life span of resort E1

When University E's foundation purchased resort E1 they intended for it to serve as the university's conference center in the future. According to one respondent, university and foundation officials considered the life span of the resort to be infinite; it was "considered a forever building, just like those on grounds" [quote from R2]. Unlike hotel E2, resort E1 was acquired by the university to remain in operation indefinitely as a hospitality facility. However, any formal estimates of life span were unavailable for this case study.

Capital outlay required for resort E1

As mentioned earlier, university officials were interested enough in acquiring resort E1 to purchase an option to buy in 1985. This option contract established the terms of sale, including the process of valuation. The purchase price was determined by employing three appraisers: one employed by the late owner's estate, one employed by the university foundation, and one independent appraiser. According to a 1987 analysis conducted by the university's foundation, the first two appraisers valued the resort at \$18,740,250 and \$24,677,122 a difference of 31.7%⁶. A "compromise" appraisal was accepted, but information on that price was unavailable for this study.

Life span of hotel E2

The foundation viewed the life span of the hotel facility, E2, differently from the life span of resort E1. Because the hotel is located on a "prime" lot near the university's

⁵ According to the respondent, this type of discussion is typical for University E's foundation board.

⁶ One respondent at University E estimated that the purchase price of resort E1 was approximately \$18 million in 1989. The other respondent indicated the purchase price was in the range of \$18-22 million.

core campus, the foundation wanted to acquire the real estate beneath it. The foundation's primary concern was not the feasibility of the hospitality business. Instead, the officials were interested in best use and highest value of the property. They foresaw the eventual demolition of the hotel and the transformation of the land to an alternative use. They also believed the hotel building was good for another ten years before major renovations would be needed. An external realty consultant, under the direction of foundation executives, considered two investment scenarios. The first scenario (Alternative One) involved funding the acquisition of E2 with 100% third-party debt, holding and operating the hotel, and demolishing the building when the land is required for alternative use in the future. Using a 10% discount rate, the consultant estimated the net present value of this scenario at negative \$1.9 million⁷. The second scenario (Alternative Two) involved purchasing the property with cash, ceasing hotel operations, and demolishing the property immediately. At a 10% discount rate, the consultant estimated the net present value of this second scenario at negative \$6.3 million⁸. To rationalize their decision, foundation officials indicated that, at the end of ten years, they would have paid \$1.9 million for the land under Alternative One or \$6.3 million for the land under the Alternative Two. Believing that the hotel building would be good for another ten years of operation, they chose the scenario with the lower net cost (Alternative One).

Capital outlay required for hotel E2

According to one respondent, the initial capital outlay required for hotel E2 was approximately \$6.7 million; \$5.5 million went toward the purchase and the remainder funded renovations. The realty consultant's presentation/report indicates that the purchase price was estimated at \$5.7 million and additional capital costs were estimated at \$1.7 million. Initially, the foundation board felt that the purchase price was too high. However, they felt that the land value would only continue to rise, so they went ahead and purchased the hotel for \$5.5 million in 1999.

SUMMARIZED RESULTS

The previous section of this chapter displays the results of interviews and secondary data analysis from each university individually. The following section combines the findings from all five universities and organizes the results under four important topics (The Four Pillars of Project Valuation and Management) related to the study's research questions. A review of the research questions posed in this study follows:

⁷ Other assumptions: holding period of 10 years, interest rate of 8%, amortization period of 25 years, balloon payment date at end of year ten, and demolition cost of \$584,000 (1998\$). Justification for the 10% discount rate (beyond the inclusion of an 8% interest rate) is not provided in the presentation/report.

⁸ Assumed demolition cost of \$584,000 (1998\$).

Pillar One	How do university officials estimate the future cash flows of their conference center investments?
Pillar Two	How do university officials determine an appropriate cost of capital for conference center projects?
Pillar Three	How do university officials identify and manage risk issues with regard to developing university conference centers?
Pillar Four	How do university officials determine the appropriate investments in materials and other resources when developing conference center projects?

Pillar One: Estimate cash flows over the life cycle of the project

Except for one university conference center (E1) where information about cash flow projection methods was unavailable, the properties represented in this case study showed evidence of pre-construction or pre-purchase cash flows projections in some form or another. Table 4.4 displays a summary of information regarding each university conference center's cash flow projections. Universities A, D, and E (E2) hired professional consultants and/or potential management companies to develop assumptions and estimate cash flows for their university conference centers. For facility A and hotel E2 the consultants constructed 10-year financial projections. In these two cases, projections were based on volatile hotel occupancies for the first two operating years and on a stabilized occupancy rate for the following years. For facility D, a hospitality consultant developed occupancy and rate projections, which a management company used to construct a two-year pro forma.

The respondents at University B were not aware of any cash flow projections that may have been produced by a consultant for the original construction and operation of their hotel and conference center. Similarly, the respondent at University C acknowledged the performance of cash flow projections by his conference center's external management company, but indicated that the projections were no longer available. The respondents at both universities, however, were able to address how cash flows might be projected today if their universities were either investing in major conference center renovations or investing in a new conference center. At University C, the respondent revealed that the university's office of finance and investments presently conducts scenario analyses and constructs cash flow projections for facilities projects "in-house" (including procedures not performed for the hotel and conference center during its planning phase). The office collects data, runs scenario analyses like the Monte Carlo simulation, and projects cash flows ten years into the future. The respondent indicated that, for his own purposes, he will run thirty-year projections, but that he does not put much faith in projections beyond five or ten years.

The procedure that a respondent at University B followed for projecting the financial impacts of recent renovations at his hotel and conference center varied greatly from those at University C. Because the conference center was already in operation at the time of his request, the respondent (the conference center's director) needed only to

outline his capital needs and describe his strategy for achieving the conference center's goal of breaking even. To do this, he divided the expected debt service by the number of guestrooms and calculated the room rate increase necessary to cover the debt.

When asked about their conference center's expected life span, respondents' answers ranged from 10 years to forever (Table 4.4, column four). However, the terminal year of the cash flow projections did not correspond with the expected life span of any of the universities' conference centers (with the exception of case E2; see Table 4.4).

Table 4.4. Summary of Pillar One (estimating cash flows over the life cycle of the project) results for five universities.

University	Who performed cash flow projection?	Assumptions	Life span of conference center	Duration of cash flow projection	Performance metrics calculated?
A	Hospitality consultant	Full-service university hotel and conference center; 125 guestrooms; 125-seat restaurant; five private dining rooms; ~18,000 square feet of meeting space; ~200 outdoor parking spaces		Ten years, from 2003/04 to 2012/13. Began with projections for 2003/04, 2004/05, and a third “stabilized” year, which served as the basis for the rest of the projection.	Investment value versus investment cost, which is a discounted cash flow and income capitalization procedure ⁹
	Current auxiliary staff	Full-service university hotel and conference center; 150 lodging rooms; 125-seat restaurant; two private dining rooms; 12 conference rooms	50-100 years (R1&2)* 35-50 years (R3)	Ten years, from 1995/96 to 2003/04	Goal to meet program needs
B	Information unavailable for original financing. Conference center’s operating director estimated impact of renovations on sales in 1999/2000.	Sales would remain constant; increased costs would be negligible; room rates must increase \$15 to cover debt service; renovations would be self-sustaining	Forever, or as long as you can keep it going (R1)* 31-41 years, according to IRS depreciation rules (R2)	Information unavailable	Projected that renovations would be self-sustaining
C	Consultant, external management company	Information unavailable	30 years	Information unavailable	Information unavailable
D	Hospitality consultant, external management company	~2,500 square feet of flexible meeting space; 140-seat dining room; use of CMP pricing approach; 106 guest suites; occupancy of 35% for first year, 46% for second year	Information unavailable	Two years, from 1993 to 1994	Information unavailable
E1	Information unavailable	Information unavailable	Forever	Information unavailable	Information unavailable
E2	Realty consultant	First year occupancy of 67%, increasing to 69% in year three and thereafter; projected first year net operating income of \$634,000; projections of other revenues and expenses based on historic operating results	10 years	10 years	Net present value

*R1=Respondent One at the corresponding university, R2=Respondent Two, etc.

⁹ Assumptions: 5.5% mortgage interest rate; 20-year amortization period; 3.0% stabilized inflation rate; 9.5% terminal capitalization rate; ten-year holding period; 7.5% calculated discount rate

Pillar Two: Determine the project's cost of capital

Two of the primary sources of capital utilized by the universities in this study for conference center projects are tax-exempt bonds and private gifts, as indicated in the cost of capital summary Table 4.5. The universities in this study display a cost of capital ranging from approximately 5.4% (University B) to 6.5% (University C).

To determine their cost of capital, the universities studied here include only their actual cost of debt. For the most part, they do not consider the opportunity costs associated with private donations or other sources of capital. The respondent at University C indicated that the university used to look at private gifts with an opportunity cost of about 10%. Because including the endowment cost inflates the cost of capital, that university no longer allocates the cost of capital to gift funding for psychological reasons. Similarly, as University E expects to receive a return on its endowment funds it included these expectations in its performance standards for resort E1 (which used endowment funds as a major source of its financing). Combining its expectations for equity returns and its actual cost of debt for resort E1, the university hoped to receive an 8% rate of return on its investment. Unlike E1, because most of these facilities are operated as auxiliary services¹⁰ through the university, their only investment requirement is to break even. This means that they must cover their own operating costs and debt service, and in some cases, contribute to an operating reserve.

Table 4.5. Summary of Pillar Two (determine the project's cost of capital) results for five universities.

University	Cost of capital estimate	How determined	Capital sources/structure
A	~6% for facilities projects	Typical actual cost of debt	Bank debt, bonds, private contributions, state general funds
	~5.7% for new hotel and conference center	Actual cost of debt	Tax-exempt revenue bonds (60.13%); proceeds from sale of current hotel and conference center (19.72%); private contributions (18.65%); auxiliary reserves (1.49%)
B	~5.5% on original construction	Actual cost of bonds	Private gift (\$100K-500K); debt (bank mortgage OR bonds at \$2.5M)
	~5.4% for renovations completed in 2000	True interest cost of 15-year bond issue	Bonds
C	~5.5% for facilities projects	Cost of 10- to 30-year tax-exempt municipal bonds plus 50 basis points for cushion	Municipal bonds, gifts
	~6-6.5% for hotel and conference center	Cost of debt plus small margin for risk and percentage to cover debt service	Private gift, bonds
D	Information unavailable		Non-taxable debt issued through state university system
	6.41%	Cost of bonds to purchase building	Bonds (taxable and non-taxable?)
E	~LIBOR plus 50	Actual cost of bank line of credit	Bank LOC; bank loans, endowment funds
E1	~8%	Implicit required rate of return	Unrestricted endowment funds (no interest), bank loan at LIBOR plus 60, assumption of small loan from insurance company
E2	LIBOR plus 50 for purchase	Actual cost of debt	Bank loans, with comfort letter from university
	LIBOR plus 75 for refinancing	Actual cost of bonds	Bonds, with letter of credit from bank

¹⁰ Exceptions include resort E1 and hotel E2, which are operated through the university's foundation

Pillar Three: Identify and manage risk issues

The participants in this study identified a number of risks associated with developing and operating a university conference center, from inflationary risk and market risk to capital campaign risk and reputational risk. This section provides a discussion of the risk issues that were brought up during more than one interview. As such, these risk issues represent reoccurring themes from the interviews. A summary of risk issues and risk management strategies appears in Table 4.6, while additional discussion of each university's risk issues appears in the first part of this chapter. Respondents at two universities (A and C) specifically mentioned the impact of time on the financial risks associated with university conference center investments. During the time that it takes to move a capital project from the initial planning phase to the financing and construction phases, interest rates and construction costs fluctuate. A respondent at University A referred to this as "inflationary risk," while the respondent at University C termed it "market risk." To mitigate this kind of risk, planners at University A may establish a bid contingency. At University C, administrators deal with this type of risk by building approximately 100 basis points into a hurdle rate to cushion the accuracy of cash flow projections and changes in market conditions. Related to this type of risk is interest rate risk, which impacts each university's cost of debt. In most cases (specifically mentioned in cases A, D, and E), experienced debt managers watch interest rates closely to develop an understanding of interest rate fluctuations and patterns. Then, they will use either a fixed or a variable interest rate on the debt, depending on which kind of interest rate structure they feel will benefit the university the most. One respondent at University E indicated that the foundation prefers to use fixed-rate debt, which seems to carry less risk than variable-rate debt. Though not a practice common to all of the universities studied here, University D and University E have used interest rate swaps to reduce interest rate risk as well.

Another risk issue mentioned during the interviews was that of "forecasting risk" or "operational risk." This type of risk is associated with the accuracy of cash flow projections. It involves unforeseen changes to assumptions like number of lodging rooms, occupancy rates, and average daily rates, which ultimately impact cash flow projections. It also encompasses the vigor (or lack thereof) of scenario analyses and the quality of projection inputs. Planners at University C add several basis points to the cost of capital to cushion some of this risk, while administrators at University A plan to offset any shortcomings with cash reserves.

Table 4.6. Summary of Pillar Three (identify and manage risk issues) results for five universities.

University	Risk issue and description	How managed
A	Inflationary risk: input costs rise during the time it takes to move a capital project from approval of project cost to bid	Establish bid contingency
	Capital campaign risk: occurs when fundraisers are unable to meet campaign goal	Foundation can provide an advance of unrestricted endowment funds until goal is met
	Operational risk: unforeseen changes to assumptions supporting feasibility plan	Shortfalls offset by draws from auxiliary's reserves
	Interest rate risk: interest rates (cost of debt) fluctuate	Debt manager keeps close eye on interest rates; use conservative interest rate estimate within reasonable range
	Financial risk: conference center may not generate sufficient revenues to pay bonds	Shortfalls offset by draws from operating reserves
	Competitive risk: possibility that conference center will be perceived as competing with local businesses	Build more meeting space than lodging space to support local hotels; do not market conference center locally
	Reputational risk: bad/good customer experience reflects on university's image	No information
B	Economic risk: state agencies are a huge source of conference center business. When state reaches economic crisis and cuts agency budgets, the conference center suffers.	Because conference center employees are state employees, they cannot be laid off in economic crisis. May try to reposition product temporarily and develop a different customer mix, or may try to ride it out.
	Expansion of local supply generates more competition.	Position as full-service hotel and conference center, which offers more amenities and services than local, limited-service hotels.
	Weather: perceived lack of accessibility in winter months	Market to skiers and other special groups in winter; reduce winter rate to stimulate demand
C	Forecasting risk: potential inaccuracy of cash flow projections; weakness of scenario analysis	Build premium into discount rate
	Market risk: input costs rise during time it takes to move project from planning to construction; weakness in managing construction costs	Build 100 basis points into discount rate; establish guaranteed maximum price
	Interest rate risk: interest rates (cost of debt) fluctuate	Interest rate swaps
D	Interest rate risk: interest rates (cost of debt) fluctuate	Maintain good credit rating; state and university system manage cost of debt
	Time: going through state queue for project approval takes a lot of time; input costs fluctuate during this time	Use cash reserves when possible for capital projects
E1	Operating risk: when resort was purchased during a drop in the real estate market, no one was willing to take on the financial risk of a ground lease	Foundation bought the property and hired a management company to operate it; Foundation absorbed the financial risk
E2	Operating risk: potential fluctuation in cash flows	Assumed conservative revenue growth
	Interest rate risk: variable versus fixed interest rate	Swapped variable rate for fixed rate

Pillar Four: The investment(s)

The university conference centers included in this study fell into two categories: those that were built or are going to be built by the university (A, B, C), and those that were purchased by the university (D, E1, and E2). It is difficult to compare the capital requirements of the facilities, as they each possess unique features. However, a summary of the initial capital outlay required for each conference center appears in Table 4.7.

Information regarding the method of determining the initial capital outlay required for each conference center was not available for two of the facilities (B and C). For those where information was available, the universities appeared to follow similar procedures for determining capital requirements (Table 4.7.). In cases A and C, where the universities built their own conference centers, construction cost estimates were based in part on university administrators' experience with facilities projects. At University A,

construction costs were estimated by the university’s architect, while at University B, renovation costs were estimated by the conference center’s director and by contractors. For the two universities that purchased their conference centers (D and E), the price was determined using a professional appraisers’ method. Through this method, the buyer and seller each hire an appraiser and share the cost of an independent appraiser. The three appraisers estimate the value of the property. Based on that input, the buyer and seller then settle on a price.

For the most part, the respondents in this study indicated that a university conference center investment could be expected to last at least 30 years (Table 4.7). Some respondents (A, B, E) believed a university conference center could last 100 years or longer, perhaps into infinity. The only exceptions to this trend were facility D, where information was not available, and facility E2, where the university’s foundation expected to demolish the building within ten years and put the land to an alternative use.

Table 4.7. Summary of Pillar Four (the investment) results for five universities.

University	Capital outlay required	How determined	Life span
A	\$33,613,000	Programming conversations; university architect’s estimate	35-100 years
B	~\$2.5M to construct; \$750K addition in early 1900s; \$1.5M renovations in 2000	Information regarding original construction estimate unavailable; renovation estimates based on director’s experience and contractors’ cost estimates	31 years to forever
C	\$51M to construct hotel, conference center, parking garage, and common areas shared with student center	Information unavailable	30 years
D	\$16,850,000	Professional appraisers’ method	Unavailable
E1	\$18-24M to purchase	Three appraisers	Forever, with lots of maintenance
E2	\$6.7M	Actual purchase price	10 more years

SUMMARY

As the research framework guiding this study, the Four Pillars of Project Valuation and Management outline four important aspects of financial investments. These four aspects---cash flow projections, cost of capital estimates, risk issues, and capital outlay---and how they relate to the university conference centers investigated in this project have been discussed in great detail in this chapter. Four tables (4.4, 4.5, 4.6, and 4.7) summarize the evidence collected for each of the four research questions guiding this study. For the most part, the universities studied here have shown evidence of addressing each of the Four Pillars of Project Valuation and Management. However, the extent to which they address the Four Pillars within a strategic context is discussed in the next chapter.

The use of the multiple case study method to this investigation has enabled the researcher to collect volumes of rich information regarding university conference center investments and the Four Pillars of Project Valuation and Management. The exploratory approach has established a foundation of knowledge for future research. Chapter Five, the concluding chapter of this document, presents the implications of this study’s results and poses additional questions for future research.

Five: Conclusions and Discussion

INTRODUCTION

This chapter brings to a close this study on university conference center financing decisions. It summarizes the major research findings and presents the contributions and conclusions of this investigation. It also sets forth additional research questions for future studies.

This study investigated the extent to which five universities address the Four Pillars of Project Valuation and Management with respect to their conference center financing decisions. The study was launched in an attempt to learn more about how American universities evaluate, plan, and fund their conference centers. It paid attention to four important areas of project valuation and management: (1) estimating cash flows over the life cycle of the project, (2) determining an appropriate cost of capital, (3) identifying and managing risk issues, and (4) estimating the quality and life of investment materials. While this exploratory study only scratches the surface of knowledge on university conference center investments, it creates a literary foundation for practitioners and future researchers on the subject.

The available literature abounds with studies and examples of private sector, corporate valuation principles and strategic management tools. In hospitality literature, the Co-Alignment Principle emerges as an important strategic management model. Combined with the net present value model, the Co-Alignment Principle serves as a strong strategic tool for value-adding managers of any industry or sector. While the literature touches on public sector financial management from a budgetary perspective, it falls strikingly short of applying corporate financial principles to the government and nonprofit sectors. The evidence presented in the previous chapter suggests that the analysis conducted by universities in developing conference centers diverges from what the literature says about the analysis conducted by private sector companies in developing similar facilities.

UNIVERSITY CONFERENCE CENTER GOALS

The Co-Alignment Principle suggests that private sector companies view conference centers as investments; that is, they see conference centers as vehicles for providing a return on their investment dollars. To achieve the highest return possible, a value-adding manager should scan the environment to identify major forces impacting the meeting, business, and hospitality sectors and to determine future trends in the conference center industry. Based on the results of the environmental scanning effort, he or she should identify strategies and competitive methods to address the forces driving change and to lead the conference center business into the future. Then, the firm should allocate its resources to building those industry-leading competitive methods. During the

strategic planning process, the manager must choose from an array of investment models to predict the value of the conference center. A popular method is the discounted cash flow/net present value approach, which forces the manager to project future cash flows, determine an appropriate cost of capital (rate of return), and estimate the initial capital outlay required for the project. A rigorous environmental scanning process improves the quality of assumptions going into the net present value calculation. Finally, the firm's performance reflects Co-Alignment by providing investors with an acceptable financial return.

The Co-Alignment Principle calls for the firm to identify and execute specific, strategic actions during any capital decision. The first action is to select a domain in which to compete and determine appropriate business strategies. This study's results indicate that universities could improve the alignment process with respect to their conference center investments. As part of the Co-Alignment process, universities must identify the context in which their conference centers will operate. In the private sector, conference centers operate in a competitive, hospitality business environment. Presumably, conference centers are constructed and operated with the goal of making money for investors. In the university environment, however, it seems that conference centers are developed to support universities' non-financial needs. Because universities are educational institutions rather than competitive corporations, conference centers tend to support their needs for continuing education or professional meeting facilities (Universities A, B, and C), hospitality space (Universities A and D), or real estate (University E). A university's reason for building or acquiring a conference center seems linked to its academic goals, but only loosely (if at all) linked to any type of investment goals. For instance, in all of the cases studied here, the only explicit investment requirement is that the conference centers break even. While some universities hope that their conference centers will go beyond breaking even, their targeted returns are far lower than the private sector's required rates of return.

It is important that a university fully recognizes its reasons for developing a conference center, as the project's goals will drive expectations and future performance. If university conference centers are not viewed as business investments, they likely will not perform as such. However, it is not clear that university officials recognize the correlation between conference center goals and financial performance. This dynamic brings up the broader challenge of linking educational and public service goals to financial metrics and models. As mentioned in the introductory chapter of this text, educational institutions establish goals related to teaching, research, and outreach. These goals, within the institutional culture, rarely if ever lead a university to high returns on investment dollars. In addition, the intangible costs and benefits associated with educational goals are difficult to quantify and plug into financial models. As a result, the institutional culture does not foster the use of the latest financial and strategic management tools. Nevertheless, universities invest in facilities like conference centers that offer auxiliary services---facilities that, in the private sector, would be expected to provide competitive returns.

While universities seem to be aligning their conference center investments to their educational environment, they do not seem to be aligning them to the business environment. If they were in alignment with the market environment, they would require their conference centers to achieve returns similar to or better than their private sector counterparts' returns. However, the evidence of this investigation shows that universities place only marginal expectations on their conference center investments. Similarly, university planners seem to put less rigor into their pre-project financial analyses than private sector investors would. This raises several questions:

- Why are university conference centers generally not considered business investments as private sector conference centers are?
- Does the regulatory environment surrounding educational institutions limit universities' consideration of conference centers as business investments?
- Does the education or financial training of its business leaders/planners impact the university's view of conference center investments? If so, how?
- Is it acceptable for universities to hold their conference center investments to lower financial standards than private sector investors would?

THE FOUR PILLARS OF PROJECT VALUATION AND MANAGEMENT

According to the Co-Alignment Principle, the foundation underlying all four pillars of project valuation and management is the environmental scanning process, which provides officials with an understanding of the university conference center's operating environment. By examining and understanding business drivers like demand and supply, customer service, and room rates, the university's administrators and conference center's operators face less uncertainty in predicting the conference center's future revenues and expenses. A comprehensive understanding of the conference center's finances and operations results in:

- Accurate cash flow projections (Pillar One),
- Low cost of capital (Pillar Two),
- Low risk (Pillar Three), and
- Controlled construction or purchasing costs (Pillar Four).

By controlling risk and capital costs, university officials can maximize the value of the conference center project. Taking into account the strategic relationships among the Four Pillars and the environment, the next few sections discuss the implications of this study's results. Each section focuses on the four research questions put forth by this study.

Research Question One

How do university officials estimate the future cash flows of their conference center investments?

Universities routinely hire outside experts to help them scan the environment and estimate future revenues and costs for their conference center projects. Whether building or purchasing a conference center, a university may hire a consultant to perform a market study and determine the feasibility of the conference center operation. Using historical

data, personal knowledge of the industry, and proprietary methodologies, the consultant estimates potential demand and (occasionally) projects revenues and expenses for the conference center. In some cases, the university's staff performs these functions. During the Request For Proposal (RFP) process, the university may gather additional data on construction costs, management expenses, or supply costs. The extent to which university officials are able to gather thorough information and analyze it is questionable, considering the university's core competencies (teaching, research, and outreach) are not rooted in business principles. The respondent at University C explained this situation specifically. At his university, the staffers collecting and analyzing financial information do not have the expertise to evaluate and control the costs of inputs like concrete, carpet, and food. Their core competencies---organizational leadership, institutional budgeting, etc.---are not aligned with the conference center's needs. The result is, at best, a very thorough, but inaccurate estimate of future cash flows for the conference center. Estimating future cash flows for a conference center is nearly as difficult for businesses as it is for universities. Without the benefit of a magic crystal ball, managers in the public and private sectors struggle to predict the futures of their businesses. Lack of good information is the primary inhibitor of quality financial projections. As the respondent at University C said, "If the input is crap, it doesn't matter who makes the projection." However, with shareholders to report to, hospitality businesses must manage risk (and therefore reduce their cost of capital) by researching input costs thoroughly, conducting sensitivity analyses, and projecting cash flows in detail. If a private sector company does not possess the competencies to support sophisticated cash flow analysis, it will perform poorly and lose investors. Because they are not bound by traditional market rules for investment returns universities are not forced to develop competencies in cash flow analysis. At the same time, the absence of clearly articulated financial goals for university conference centers seems to preclude the necessity for sophisticated cash flow projections.

If university conference centers are developed for reasons other than to provide a return for investors (*See the previous section's discussion on Co-Alignment and University Conference Center Goals*), how important are cash flow estimates in a university's decision to invest in a conference center? It is possible that cash flow estimates, when accompanied by a feasibility study, actually influence a university's decision to invest or not to invest in a conference center. However, it is quite likely that cash flow projections serve to insure that the university's staff has covered all of the bureaucratic steps required to invest capital in the project. Effectively, cash flow projections, despite their inaccuracy, reduce the perceived risk of a conference center facility. Future research should investigate the actual role cash flow projections play in universities' conference center financing decisions.

The results of this study suggest that universities have room to improve their environmental scanning efforts and to challenge the rigor of assumptions going into conference center cash flow projections. With the wealth of information accessible to anyone, one of the biggest challenges to any investor is determining the accuracy and usefulness of the available information. To sift through the volumes of information about the environment, universities should formalize their environmental scanning efforts.

Through a formal scanning process, each university will be able to identify the threats to and opportunities for its conference center operations. Without the business understanding that comes with a quality environmental scanning program, the university conference center will become a financial drain to the university. In addition to becoming active environmental scanners, university officials should become more comfortable with challenging the information and assumptions behind cash flow projections.

Research Question Two

How do university officials determine an appropriate cost of capital for conference center projects?

By improving the quality of assumptions behind cash flow projections, a quality environmental scanning effort reduces the risk associated with operating a university conference center and, consequently, reduces the cost of capital for the project. While universities do not seem to have formal environmental scanning processes in place to minimize forecasting risk, they do have systems set up to manage their cost of capital for conference centers. First, universities (both public and private) take advantage of low-cost, tax-exempt municipal bonds to finance their conference centers. As of September 13, 2001, the yield on a 20-year, AA-rated, tax-exempt municipal bond was 4.62%. On the same day, the yield on a taxable corporate bond with the same maturity and rating was 6.85%¹¹. The considerably lower yield on the municipal bond points to investors' willingness to accept a lower return for the tax advantages they receive. The lower yield reflects a lower interest expense, which is the cost of debt, for the municipal bond issuer. By issuing tax-exempt debt, universities are able to enjoy a significant cost advantage over their private sector counterparts. In addition, universities are able to reduce their cost of debt by employing debt managers to monitor interest rates and maintain good credit ratings.

Another source of low-cost financing available to universities is private contributions. In the corporate world, private contributions are considered equity capital and come at a considerably higher cost than debt capital. Because shareholders must wait until after debtors are paid to receive their returns, they charge corporations a risk premium on their equity contributions. This risk premium can be measured by the difference between average stock market returns and risk-free investment returns. For example, during the 1990s, Standard and Poor's 500 stock index (S&P 500), an indicator of overall stock market performance, provided an average return of approximately 17%¹² (Gump, 1998; Barker, publication date unavailable). During that same period, the United States Treasury Bill, an indicator of risk-free investment returns, provided an average

¹¹ <http://www.bonds.yahoo.com/rates.html>, September 13, 2001

¹² Warren Gump estimated the average return on the S&P 500 at 17.6% from the end of 1988 to September 30, 1998 (<http://www.fool.com/EveningNews/foth/1998/foth981229.htm>). Bill Barker estimated the average return on the S&P 500 at 17.3% for the 1990s (<http://www.fool.com/school/mutualfunds/indexfunds/sp500.htm>).

return of approximately 5%¹³. In effect, the equity market satisfied a risk premium of about 12% (17%-5%=12%) over the risk-free investment rate. This 12% premium on equity was the return corporations had to provide in order to compensate investors for inflation and risk. As educational institutions, universities do not issue equity securities. Therefore, they are not subject to the same kinds of equity return requirements that corporations are. In effect, universities treat the cost of equity capital as free. While private contributions appear free to universities, they actually come with opportunity costs. The opportunity cost is the most valuable alternative that is foregone by investing in a conference center. If a university decides to invest in a conference center, it may be missing an opportunity to place its resources in a potentially higher-return investment like another auxiliary service or the stock market. However, because universities do not seem to be driven by the need to provide returns on invested capital, they do not evaluate the opportunity costs of private contributions.

None of the universities studied here evaluate the opportunity costs for equity contributions with respect to conference center investments. Several reasons were cited for this. First, in many cases, endowment funds are restricted to certain, specific purposes. Donors can and do earmark their contributions for specific departments or projects within a university. For instance, a Forestry graduate may specify wishes for her donation to go directly to the Forestry Department's scholarship program. In this case, those funds cannot be used to help finance a conference center. Because those funds are unavailable for conference center financing, they are assessed with an opportunity cost. However, the participants interviewed for this study indicated that even their unrestricted endowment funds (the private contributions available for any purpose) are not charged with opportunity costs. In fact, the respondent at University C mentioned that his university looked at private gifts with an opportunity cost of 10% in the past. However, because including the endowment cost inflates the cost of capital, the university no longer allocates the cost of capital to gift funding. The decision not to include the 10% cost of equity capital was purely psychological, as it made the cost of each capital project appear prohibitively high. By not including opportunity costs in the cost of capital, university planners are more comfortable with the potential results of the project. Obviously, this action is purely cosmetic; it only disguises the opportunity costs of equity capital.

By issuing low-cost, tax-exempt debt and ignoring the opportunity cost of equity capital, universities significantly reduce their cost of capital for conference center projects. From a traditional financial perspective, the lower cost of capital should translate into a higher return for investors. Among university conference centers, however, there is great misalignment between these concepts. For example, a respondent at University E mentioned the university's hope that resort E1 would provide an 8% return on capital to cover some of the opportunity costs of investing unrestricted endowment funds in the resort. The respondent indicated that the university expects returns much higher than this on its endowment funds, but that 8% was the best the

¹³ Data source: Federal Reserve Web Site (<http://www.federalreserve.gov/releases/H15/data/a/tbaa1y/txt>). Ten-year average of U.S. T-bill interest rate was calculated at 4.94% from 1991 to 2000.

university could expect from the resort in its operating environment¹⁴. In this case, opportunity costs were considered, but the target return was lowered to accommodate the resort's grim investment outlook.

In the stock market, companies are expected to allocate returns to their investors either in the form of value growth or in the form of dividends. None of the university conference centers participating in this study are expected to distribute returns to its pool of equity investors, because the endowment funds are considered gifts with no strings attached. In fact, because of the policies regulating the contribution and use of charitable donations, universities are not allowed to provide financial returns to their donors. As a result, university conference centers are not required to perform as well as private sector conference centers. At the most, they are required to exhibit break-even operations. That is, they are supposed to cover their operating expenses and debt service, and in most cases, contribute to an operating cash reserve. All of the universities studied here *hope* for their conference centers to go beyond breaking even. In fact, hotel E2 is a conference center facility that does make a profit for the university's foundation. However, the respondents at all of the universities indicated that their campuses would (and in some cases do) subsidize their conference centers' operations if they were not able to cover their costs.

University conference centers, like corporate sector conference centers, are capital-intensive and labor-intensive facilities. In the private sector, conference centers would be expected to cover their high operating costs and debt service, as well as contribute to an FF&E reserve and provide acceptable financial returns to equity investors. In the university sector, conference centers are expected to cover their operating expenses and debt service and contribute to an operating reserve, but they are not required to provide returns to investors. Because they do not have to provide returns to investors, their hurdle rates remain lower than business sector hurdle rates. Universities are further able to enjoy a lower cost of capital for the conference centers than their corporate counterparts are because they take advantage of low-cost, tax-exempt debt financing and use charitable equity donations. While equity providers receive tax advantages and non-financial benefits from their contributions (like the satisfaction of doing something nice for the university or, in the case of helping to fund a conference center, the use of the university's hospitality facilities), universities do not consider the opportunity costs associated with conference center investments. In this vein, they are able to keep their cost of capital superficially low.

Research Question Three

How do university officials identify and manage risk issues with regard to developing conference centers?

¹⁴ Resort E1 currently is not operating to expectations. The university's Foundation has developed a strategic plan to improve the resort's performance.

The most salient forms of risk to universities during the financing of their conference centers are related to the time it takes to move a capital project through the universities' and the states' bureaucratic systems. In the time it takes to move from the planning and design phases to the financing and construction phases, cash flow assumptions, construction costs, and capital costs can fluctuate. The uncertainty of these variables inserts risk into the project. While corporations face these same issues, they are equipped better than universities to move a capital project quickly through all of the development stages. Consequently, competitive strategies and service technologies in the private hospitality industry change constantly and rapidly. Rapid change and volatility promote uncertainty and risk. To keep up with change, hospitality competitors must scan the environment carefully and quickly and develop competitive methods to address future trends. Even in the private sector, the regulatory environment can slow the development of industry-leading competitive methods. However, the cumbersome nature of university and state bureaucracies leaves university conference centers unable to compete effectively against faster-moving private companies in the hospitality industry.

With potentially volatile input costs and a rapidly changing environment, producing accurate revenue and expense projections is the key to reducing a conference center's operational risk. Traditional sensitivity analyses like Monte Carlo simulations and expected value calculations reduce this type of risk by requiring financial managers to consider all possible scenarios and revealing the most likely outcomes. The results of this study reveal that the sensitivity analysis behind cash flow estimates is non-existent, weak, or misunderstood by university officials. In most of the cases studied here (C, D, E1, E2), university officials relied on external consultants to construct cash flow projections¹⁵. While respondents indicated that their organizations had discussed the cash flow estimates during the planning phase of their projects, they were unable to provide details about those discussions. In addition, they were vague about the methods used to construct the cash flow estimates.

Only one respondent (at University D) mentioned using sensitivity analysis for cash flow projections. This practice is relatively new to the university; sensitivity analyses probably were not conducted for the university's conference center project in the late 1980s. Despite the fact that the respondent's financial department now performs Monte Carlo simulations for capital project, the quality of the output is compromised by the inadequacy of input variables.

While planning to operate conference centers as on-going businesses, universities should put a lot of thought into the assumptions behind cash flow estimates. Sensitivity analyses, expected value calculations, and other financial simulations would greatly help project managers to identify and understand the operational risk of university conference centers. However, universities' failure to understand the importance of accurate cash flow estimates weakens the business potential of their conference centers.

¹⁵ University A also used a consultant to project cash flows, but then used internal personnel to revise the estimates.

Research Question Four

How do university officials determine the appropriate investments in materials and other resources when developing conference center projects?

According to the Co-Alignment Principle, firms should allocate their resources effectively and efficiently to the successful execution of the firm's competitive methods (Olsen, et al., 1998). Traditionally, competitive methods are defined as the unique mix of products and services that a firm uses to address the forces driving change in the environment. A truly competitive method gives the firm an advantage over its challengers. The better a competitive method is, the harder it is for competing firms to imitate. From a private sector perspective, investment in competitive methods leads to financial benefit for the firm. If the firm allocates its resources effectively and efficiently to industry-leading competitive methods, the firm will maintain healthy financial performance.

The construction/purchase and operation of a university conference center can act as a competitive method, as it may serve to advance one or more of the university's primary goals. For instance, at Universities A, B, and C, the conference center serves to promote the university's goal of information dissemination and outreach. At University E, both conference centers serve to further the foundation's goal of acquiring contiguous sections of real estate to support the university's needs. If, in fact, conference centers are competitive methods that allow their universities to achieve their strategic goals, then they have finite lives. To extend the competitive life of its conference center, a university must invest continually in products and services that are better than its competitors'.

The initial capital requirement to purchase or construct a conference center varies from university to university, depending on the programming requirements of the conference center and the size of the facility. As vehicles used to further universities' goals, conference centers are viewed with life spans much longer than would be found acceptable in the private sector. In many cases, university conference centers are expected to endure forever. With proper maintenance, it is possible that the physical structure could last thirty years or more. However, a conference center facility needs a constant investment of resources in furniture, fixtures, equipment, and supplies to maintain acceptable operations. At the same time, private sector hospitality companies recognize the need to replace furniture, fixtures, etc., often. It is unclear from this study's results whether or not university officials recognize this need. In some cases, the university establishes an FF&E reserve to fund future maintenance and replacement needs. However, future research may wish to look into this topic in more depth. Future research questions might be:

- Do university officials recognize the need to replace often the furniture, fixtures, equipment, and supplies in their conference centers? If so, what are the strategies they use to address maintenance and replacement needs?
- How important are future FF&E replacement needs of a conference center to a university's conference center investment decision? How do

universities evaluate the quality and life span of specific inputs like furniture, fixtures, and equipment?

- How important is it for university conference centers to develop industry-leading competitive methods? Do industry-leading competitive methods exist among university conference centers? If so, what are they and what are their expected life spans?
- How long can university conference centers be expected to sustain their missions?

ESTIMATING CONFERENCE CENTER VALUE

Net Present Value

Several metrics exist for estimating a project's value. Internal rate of return (IRR), payback period, book rate of return, net present value (NPV), and adjusted present value (APV) are among the most common investment criteria. Many financial analysts prefer using NPV, as it takes into account initial capital requirements as well as cash flows over the entire life cycle of an investment. In addition, it takes into account the time value of money and allows managers to evaluate mutually exclusive projects. A relatively newer approach, the APV method, is similar to NPV, but it breaks a project into parts and allows the manager to separate operational cash flows from financing side effects. In general, the net present value approach does not appear to be used widely among universities when evaluating conference center investments. One exception in this study is hotel E1, where net present value was used to decide whether to demolish the hotel building immediately or to operate it as a hotel for another ten years (and then demolish it). Another exception is University C, where net present value is used currently to estimate the value of capital projects. However, this metric was not used in the late 1980s when the conference center was being planned and financed. One respondent (at University A) in this study specifically mentioned that IRR and NPV are not appropriate decision making tools, as the goal for the conference center is the programming (i.e., what is in the conference center and the way it serves the university's purpose is more important than the financial value). This comment is not surprising, considering the fact that the intangible benefits of conference centers seem to be more important to universities than the financial benefits. However, it does raise a few questions:

- Is net present value an appropriate metric for appraising the worth of a university conference center? If not, does a more appropriate metric exist?
- Are university conference centers viable financial investments? If not, how do university officials measure the intangible benefits associated with their conference centers? Further, how do they weigh the intangible items against the tangible ones?

Measuring actual performance

According to the Co-Alignment Principle, a firm should make cash flow the main consideration when measuring performance. Appropriate metrics are cash flow per share, economic profit, or return on invested capital, as they measure the direct cash benefits to shareholders. The results and discussion of this study have established that universities do not issue equity securities and do not consider the costs of equity capital in their conference center performance requirements. Therefore, cash flow per share is an inappropriate performance metric for university conference centers. It appears that the main performance metric for university conference centers is profit/loss¹⁶.

A rather large limitation of this study is that it did not investigate the actual performance of university conference centers. Future research should compare performance expectations and performance metrics to the actual performance results of university conference centers.

CONCLUSIONS

The Four Pillars of Project Valuation and Management

Based on the results of interviews, a literature review, and secondary data collection, this study has made several conclusions about universities' conference center financing decisions with respect to the four pillars of project valuation and management. First, when universities estimate cash flows (Pillar One) for their conference centers, they often rely on an outside consultant to perform the projections. The rigor of assumptions going into those projections is questionable. Second, when determining an appropriate cost of capital (Pillar Two), universities consider only the cost of debt, ignoring the opportunity costs of equity contributions. Universities take advantage of low-cost financing through tax-exempt bonds and private gifts. Third, the most salient forms of risk (Pillar Three) to universities when developing a conference center are related to the long amount of time it takes to move a capital project from the planning phase to the construction phase. In that time, the volatility of input costs presents financial risk. However, university personnel are ill-equipped to control input costs. Further, they fail to understand risk by conducting sensitivity analyses on their cash flow projections. Finally, university conference centers are expected to operate as on-going businesses for a long time. Nevertheless, it is not apparent that university officials fully recognize the constant investment in furniture, fixtures, equipment, and supplies that conference centers require.

¹⁶ Interviewees were not asked about performance metrics directly. However, they were asked about their conference centers' required/expected rates of return. In nearly all cases, the conference centers were expected to "break even" (the primary requirement of an auxiliary), which leads the author to conclude that the main financial metric is the bottom line of the income statement.

Co-Alignment

The theoretical replication logic used in this study revealed that differences in ownership (public versus private), management (internal versus external), and location (urban versus rural) have very little, if any, influence over universities' conference center financing decisions. Conference center financing practices appear to be similar across all universities. This may be the result of a strong university or non-profit culture that defies traditional financial principles. In a broad sense, university conference centers are not aligned with the recommendations put forth in financial and strategic management literature. The environmental scanning efforts and sensitivity analyses supporting conference center investments are weak. In addition, the university culture is not equipped to evaluate and invest in industry-leading competitive methods. Finally, university conference center goals lack the passion for financial success that private sector businesses exhibit. Ambiguous missions and goals of university conference centers create misalignment and thwart any efforts to make the conference centers competitive.

LIMITATIONS

The Co-Alignment Principle acknowledges that, in any business, value-adding managers must learn how to allocate scarce resources to industry-leading competitive methods. Ideally, value-adding managers would identify the appropriate competitive methods then contribute resources to those methods. Very often, however, managers allow their limited resources to dictate their choice of competitive methods. The competitive method employed in this investigation to uncover information about university conference center financing was the case study method. As a versatile research tool, the case study approach allowed the researcher to conduct a thorough exploratory study. Unfortunately, as happens to so often in the "real world," limited resources were allowed to compromise the reliability and validity of the investigation. The following section of this chapter discusses the limitations of the study, describing impacts to reliability and validity.

Limitations of the case study method

As an approach that allows the researcher to draw conclusions about a complex phenomenon from multiple sources of evidence, the case study method provided a strong exploratory framework for this investigation. In fact, the strengths of the case study method---dealing with contemporary phenomena in their real-life context, uncovering multiple sources of evidence, and investigating complex problems---were far more important than the weaknesses---no basis for statistical generalization, voluminous documentation, and perceived lack of rigor. An analysis of these weaknesses and other limitations of this study concludes this report.

No basis for statistical generalization

The purpose of this study was to explore university conference center financing practices. As an exploratory case study with only five participating universities, the limited sample size was not intended to provide externally valid results. Nevertheless, the theoretical replication logic behind the selection of cases provides some basis for generalizing findings to university conference centers as a whole. Future researchers, using this study's findings as a theoretical basis, could design investigations specifically intended to produce externally valid conclusions.

Voluminous documentation and data reduction

Case study research generates a plethora of rich data. Distilling this data into smaller, manageable documents can be tedious, time consuming, and difficult. Despite the author's use of matrix tables and the organization of data around the four research questions, the case study report is quite lengthy and cumbersome. Readers may criticize the amount of information presented in this document.

Despite the copious amounts of information presented in this report, many of the ideas captured throughout the literature review were omitted from the data collection phase and the case study report. A major concern at the outset of this study was the number of variables and operational measures identified by the literature review. Time constraints prohibited the author from covering every salient concept during interviews with respondents. Before collecting any data, the author¹⁷ prioritized the long list of important concepts identified in Chapter Two (Table 2.4) and condensed the list into several key interview questions (see Table 4.2, *Condensation of research concepts into operational measures*; and the Appendix for a list of actual interview questions). The condensed list of questions was intended to uncover the essence of each conference center's relationship with its university and to capture the main concepts underlying each pillar. While this practice created a small diversion from the original case study protocol outlined in Chapters Two and Three, it saved time for the researcher and respondents and reduced the input of data to a manageable amount.

Perceived lack of rigor

A principal strength of case study research is its facility to derive conclusions in a triangulating fashion from multiple sources of evidence. The reliability of conclusions increases as the number of evidence sources increases. At all of the universities participating in this study, except University C, interviews with at least two respondents provided the base for multiple sources of evidence. As the first table in Chapter Four (Table 4.1) shows, secondary sources of information also were gathered for each case in this investigation. Several of the cases studied here, particularly Universities A, D, and

¹⁷ with the consultation of her thesis committee advisor

E, provided multiple sources of secondary information to support interview responses. The other two universities, B and C, provided only limited secondary sources.

The failure to get two interviews at University C and the lack of informative secondary sources at Universities B and C contribute to the perceived lack of rigor of this study. As such, they also weaken the reliability of results. However, as the Co-Alignment Principle duly notes, the quality of information one collects is just as important, if not more important, than the quantity of information he or she receives. For instance, the author found that a feasibility study combined with a pro forma financial statement revealed more information about a university's conference center investment decision than sales brochures, web site information, and news articles together. In addition, the one respondent at University C was able to convey a more sophisticated understanding of this study's concepts than several of the other respondents combined. Despite the fact that he was not involved in his university's conference center financing originally, the respondent at University C was able to speak clearly to university financing practices in general. In contrast, the two respondents at another university were unable to provide much useful insight into their conference center's funding at all. In summary, while a weakness in the number of interviews and secondary sources contributes to the perceived lack of rigor in this study, the number of cases studied and the quality of information provided in some cases balances out the weaknesses.

Respondent bias

Respondent bias refers to the weaknesses of individual respondents that might influence the study's reliability. For instance, because most respondents were being asked about conference center financing decisions made in the past, poor recall may have prevented them from providing accurate answers. Further, in some cases where the interviewees were not involved in the original conference center financing, they had to rely on second-hand information for their responses. This opened the door for poor recall or misinterpretation of information on the part of the respondents. In addition, interviewees may have hidden information (either deliberately or inadvertently). In this study, interviewing more than one respondent at each university¹⁸ alleviated respondent bias.

Researcher bias

One of the widely embraced advantages of semi-structured interviews is their flexibility. During the course of an interview, the researcher is able to adapt the discussion to an individual situation and is free to probe into the context of, or reasons for, answers to questions (Yin, 1994). As a result, the flow of discussion is subject to the interviewer's discretion. Interview responses inevitably reflect the researcher's influence. In addition, the researcher chooses how to condense and interpret findings.

¹⁸ with the exception of University C

In this investigation, the case study protocol mitigated some researcher bias by providing a strict procedural guide for the researcher to follow. However, as in all research, the interpretation of findings inevitably reflects the author's understanding of the literature and the results. Consultations with her research advisor, however, served to validate the author's interpretation of results.

Selection of cases

Funding constraints on this project restricted the researcher from traveling farther than a day's drive to interview respondents. While case selection attempted to follow theoretical and literal replication logic, the pool of potential cases was limited to universities within a 300-mile radius of Blacksburg, Virginia. However, the relative uniformity of results across all of the cases studied here suggests that different results probably would not have been obtained by including additional universities in the study.

SUMMARY

Universities face a challenge of operating successful conference centers in a competitive business environment. They are able to lower their conference center financing costs by taking advantage of tax-exempt debt and private donations. Nevertheless, in order to maintain successful businesses, university officials must learn to evaluate conference center projects strategically. This means incorporating strategic management models like the Co-Alignment Principle into their daily operations. The results and conclusions of this multiple case study have set forth several recommendations for university officials. At the same time, it has set the foundation for additional research on the subject.

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Appendix

INTERVIEW QUESTIONS

Below is a list of interview questions. If you prefer, you may draft answers to these questions prior to our interview in order to make the interview process go smoothly. During the interview, I may ask some additional clarifying questions. Please remember that all responses will be kept confidential. Thank you for your time.

Background

1. What was your role in the development of your university's relationship with its residential conference center?
2. What was the purpose for developing the university's relationship with its residential conference center?
3. What is the university's relationship with the residential conference center?
4. What is the residential conference center's mission?
5. Who operates the residential conference center?
6. To whom does the residential conference center's general manager report?
7. Was a feasibility study conducted for this project?

Capital outlay

8. What was the initial capital outlay required for residential conference center project?
9. How did you (your organization) arrive at this estimate?

Cash flow projections and life span

10. What is the estimated life span of the residential conference center?
11. How did your organization arrive at this estimate?
12. What were the projected cash flows (revenues and expenses) of your residential conference center when the deal was being put together?
13. How did your organization arrive at this estimate?

Rate of return and capital structure

14. What forms of financial capital does the university normally obtain for facilities projects?
15. What is university's cost of capital for new projects?

16. What forms of financial capital did you obtain for the residential conference center project?
17. When you were putting the deal together, what was the expected rate of return (or the required rate of return) for the residential conference center?
18. How did your organization arrive at this estimate?

Risk

19. Did you (or your organization) define “risk” with regard to the residential conference center? If so, how did you define risk?
20. How did you estimate the possible variances in the residential conference center’s future cash flows?
21. Did you address the possible variances in future cash flows?
22. What were some of the factors that saw as being important to driving bottom-line revenues for the residential conference center?

Additional sources of information

Can you help me obtain additional WRITTEN evidence of the issues addressed by these interview questions? Additional sources of evidence might include:

- Feasibility studies
- Project proposals
- Internal memoranda
- Working papers
- Project goals
- University and conference center mission statements