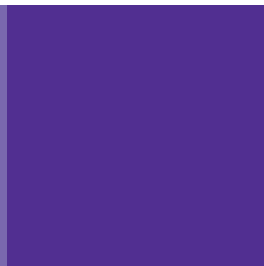


# Have You Considered Your Portfolio's Enterprise Risk?

## *Enterprise Analysis and Endowment Performance*

The portfolio's enterprise risk is the potential effect of portfolio volatility on the bottom line of your organization. For a given institution, the risk may be lower than Trustees think it is—or it may be higher. How does one measure this risk? How should it be dealt with when constructing a long-term investment portfolio? What can be done to avoid poor returns caused by inadequate enterprise analysis? We suggest the use of the portfolio/enterprise risk tool.

Very few long-term portfolios are explicitly linked to operating results. In the case of endowments, certainly before the financial crisis of 2008, very few used analytical models to project the potential operating consequences of various portfolio decisions, and under various capital market scenarios. While nearly all endowments now address *portfolio* risk, *enterprise* risk continues to receive far less attention—and in some cases, no attention at all. If Trustees do not adequately consider the enterprise risk that's related to the long-term portfolio, then they may overlook situations in which the portfolio is either invested too aggressively in terms of enterprise risk, or invested too conservatively to support the institution's needs.



What is the reason for this common oversight? Most often, the reason is **governance**. Many institutions have an Investment Committee primarily or exclusively focused on investments, and a separate Finance Committee focused on operations, budget, and planning. The conversations in the Investment Committee can be thorough and sophisticated with respect to portfolio risks, but typically the enterprise risk that's posed by the endowment is left to the Finance Committee or the Audit Committee. Meanwhile the conversations in the Finance Committee typically assume a given payout amount ("endowment spending") without delving into the implications of various asset allocations, investment risk profiles, and capital market scenarios. If enterprise risk is formally addressed, it embraces a wide range of risks, of which the risk from the endowment is only one of many. Similarly, the Development Committee may be planning a capital campaign without explicit consideration of the estimated impact of endowment gifts on the bottom line, given alternative capital market scenarios. Thus, portfolio-linked enterprise risk often falls between the cracks of Trustee committee structure. Other important governance-related reasons are committee composition, process, and policies (or lack thereof).

At other institutions, **management structure** may be the reason for inadequate linking of portfolio to enterprise. Reporting lines and degree of centralization of decision-making can be important factors. Internal communi-

cation and process can fail to place portfolio mandates within the enterprise context, or conversely account for budget and capital decisions in the context of portfolio composition. The shortcomings of both governance and of management structure became broadly evident during the financial crisis, when liquidity problems and financial liabilities (primarily debt and outstanding capital commitments) unexpectedly came to the fore at many institutions. In many cases such factors unnecessarily drove asset sales at depressed prices and/or changes in asset allocation policy or investment risk profile, locking in poor returns.

A third reason is the frequent absence of **strategic planning** addressing long-term capital as well as long-term operating performance, within the context of portfolio size and asset allocation. Most often, inadequate risk analysis is seen in capital campaigns that are launched without formal modeling of long-term outcomes. For example, the trade-off between devoting more campaign proceeds to endowment versus more to capital construction is usually not analyzed in the context of portfolio-related variables such as asset allocation and payout rule. The widespread use of tax-exempt debt, encouraged by unusually low interest rates, has tilted capital campaigns toward buildings, in campaigns that also involve debt issuance.<sup>1</sup> The

<sup>1</sup> To issue tax-exempt debt, the proceeds must be used for capital facilities. In recent years, nonprofit institutions have stepped up issuance of taxable debt, the proceeds of which can be used for purposes other than facilities.

use of such leverage involves an interest rate risk, of course. But there are also other risks such as the expansion of fixed costs associated with additional buildings. The growth in fixed costs—unless adequately analyzed within the context of portfolio construction as well as operations—can lead to a mismatch between portfolio and enterprise.

Finally, there is often a failure to weigh the specific **enterprise risk** associated with the endowment. As noted, endowment risks are often carefully analyzed, and the use of risk models is becoming more widespread.<sup>2</sup> However, endowment volatility is often not incorporated in a formal analysis of the institution's bottom line. Models of portfolio outcomes are not linked to a model of estimated operating consequences. The operating model should include other revenues beyond endowment payout, expenses, operating reserves (if any), access to external liquidity, capital infusions, and debt, among other key factors. Additionally, the historical net flow rate—which is the key driver of endowment growth—must be taken into account.<sup>3</sup>

<sup>2</sup> See Cambridge Associates, *From Asset Allocation to Risk Allocation: The Risk Allocation Framework*, 2013.

<sup>3</sup> For more detail on the net flow rate, see Ann Bennett Spence, Tracy Filosa, and Billy Prout, *The Missing Metric for Endowment Growth: Net Flow Rate*, Cambridge Associates Research Note, November 2014.

It is important to note that the supposed failure of the “endowment model”<sup>4</sup> during the 2008 financial crisis was often in fact attributable to inadequate operating liquidity. Institutions that better analyzed their total exposure to market volatility (portfolio and operations) had far better endowment performance because they were not forced to sell in adverse market conditions—and thus they registered better endowment performance. Indeed, those with a well-constructed strategy for “worst case” liquidity constraints were able to add inexpensive illiquid investments at lows, leading to outstanding subsequent returns. Some institutions were able to suspend endowment payout altogether, during the critical period, because they had planned for operating liquidity from other sources. Thus, *adequate operating liquidity allows for a more aggressive investment of the long-term portfolio*. An appropriate mix between operating liquidity on the one hand, and extra liquidity in the portfolio on the other hand, cannot be determined without the use of a reasonably comprehensive model.

<sup>4</sup>The term “endowment model” is meant to describe an equity-oriented, value-biased, diversified portfolio that includes allocations to less liquid or complex investment strategies such as hedge funds and private equity. For additional background, see Mary Cove and David Thurston, *The Endowment Model 2.0: A Success Story that Endures*, Cambridge Associates Research Report, 2013; and Cambridge Associates, *Endowment Management*, Research Report, 2008.

## Modeling Portfolio/Enterprise Risk

Based on its decades of enterprise advisory experience, Cambridge Associates has developed a portfolio/enterprise risk tool that captures exposure to market volatility in a comprehensive way: the impact on the enterprise as well as on the portfolio. The model projects an institution's operating results ("bottom line") given various asset allocations or investment risk profiles, various spending rules, and various capital market scenarios.<sup>5</sup> It also projects endowment market values going forward, including capital campaign proceeds (if any). The model is updated annually and at such times as it is used for strategic decisions.

<sup>5</sup> The capital market scenarios we model and show here include Equilibrium, which represents a base case of long-term equilibrium real returns that are independent of current valuations targeted toward a generic 25-year-plus time horizon and incorporate a reasonable equity risk premium. In the Return to Normal scenario, we incorporate current valuations and assume equity valuations revert to fair value over ten years. This scenario makes assumptions about the market environment including mild inflation, moderate real earnings growth, and low corporate default rates, government bond yields, and credit spreads. Our Deflationary Bust scenario assumes valuations from current levels fall between 1.5 and 2 standard deviations below fair value over three years. The environment in this scenario includes mild but persistent deflation, negative real earnings growth, high corporate defaults, and a dramatic decrease in sovereign bond yields. This scenario is loosely modeled on the US Great Depression, the 2008 global financial crisis, and Japan's experience since the 1990s. Finally, our Inflationary Bust scenario assumes a similar level of contraction in valuations as the Deflationary Bust scenario. However, this environment features high inflation, strong nominal yet negative real earnings growth, above-average corporate defaults, and high nominal government bond yields. This scenario reflects an environment similar to that in the 1970s.

Trustees at institutions with small or large endowments should find the planning tool to be a useful means of gauging an important enterprise risk. As an example, in Figure 1 we show the results of the portfolio/enterprise risk tool applied to the financial results of an educational institution under various capital market conditions.

An important observation here is that given the same portfolio, same spending rule, and same operating parameters, the two capital market scenarios of concern are the "inflationary bust" and "deflationary bust" scenarios. The projected endowment market values are also shown in the bottom panel of Figure 1.

At another institution, the focus was on determining an appropriate mix of capital campaign proceeds, depending upon the extent to which the campaign focused on endowment gifts or on gifts to the physical plant, as well as the size of the capital campaign. The portfolio/enterprise risk tool captured the portfolio's asset allocation, the spending rule, a "return to normal" capital market scenario, and the operating budget (the business model)—and then varied the capital campaign goals. The results are illustrated in Figure 2.

Figure 1. Sample Model Output Showing Financial Results Under Various Capital Market Scenarios

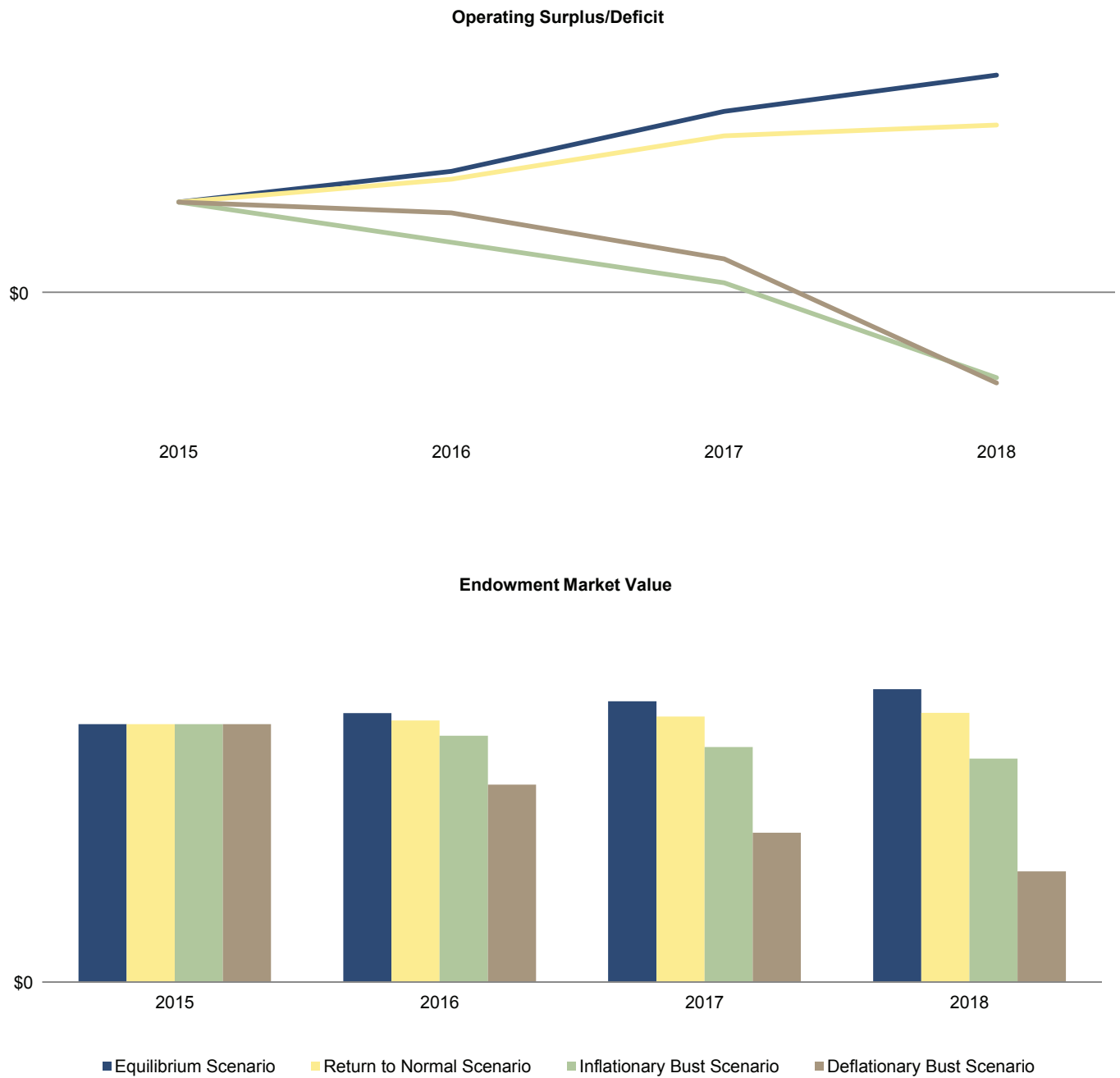
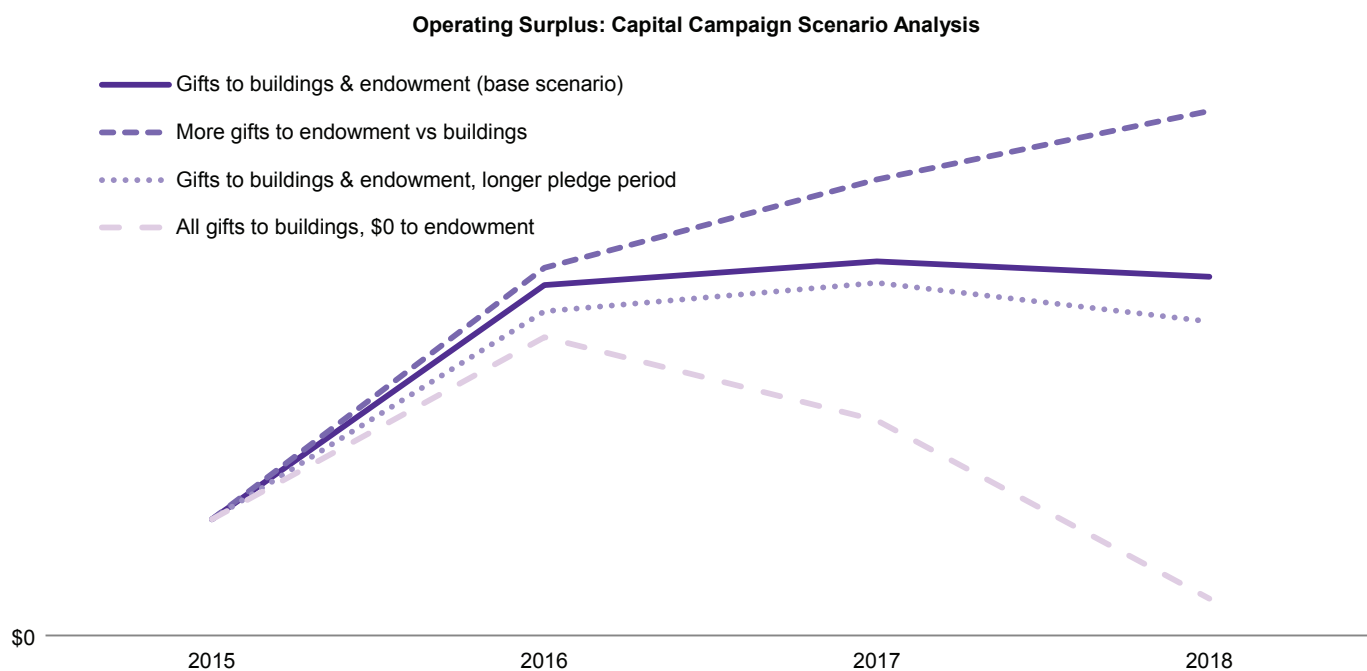


Figure 2. Sample Model Output Showing Differential Impact of Gifts to Endowment vs Buildings



Notable in Figure 2 is the vast difference in the robustness of the institution's business model, given a heavy emphasis on endowment versus a heavy emphasis on buildings. Each of the outcomes can also be combined with varying capital market scenarios and varying portfolio asset allocations or risk profiles.

Finally, for another institution Cambridge Associates incorporated alternative tuition strategies into an analysis of different levels of endowment gifts for financial aid. Figure 3 is essentially a picture of the impact on the institution's business model, given a combination of operating decisions and capital campaign decisions. The tool was also used to generate

alternative pictures given other asset allocations and other capital market scenarios.

To conclude, we note that while portfolio construction is and should be the central focus of the Investment Committee, adequate Board-wide fiduciary oversight requires that portfolio decisions be evaluated not only in terms of portfolio returns and risks, but also in terms of enterprise risks. A portfolio/enterprise risk model is an important step in weighing the impact of the endowment on the enterprise. This Cambridge Associates risk tool can be applied to the current portfolio and to key operating characteristics, for a very effective estimate of enterprise risk. Such an assessment might suggest some adjustment to the investment

**Figure 3. Sample Model Output Showing Impact of Various Fundraising, Gift, and Tuition Growth Levels Operating Surplus/Deficit Under Various Capital Campaign, Total Year 3 Endowment Values, and Tuition Growth Rate Scenarios**

Total Capital Gifts to Endowment, US\$mm <sup>1</sup>	Approx. Endowment Value, Year 3, US\$mm <sup>2</sup>	Tuition Growth Rate														
		-1.0%	-0.5%	0.0%	0.5%	1.0%	1.5%	2.0%	2.5%	3.0%	3.5%	4.0%	4.5%	5.0%	5.5%	6.0%
\$0	\$261	-\$7.9	-\$7.0	-\$6.0	-\$5.1	-\$4.1	-\$3.2	-\$2.2	-\$1.3	-\$0.3	\$0.7	\$1.7	\$2.7	\$3.7	\$4.7	\$5.7
\$25	\$282	-\$7.6	-\$6.7	-\$5.7	-\$4.8	-\$3.9	-\$2.9	-\$2.0	-\$1.0	\$0.0	\$1.0	\$2.0	\$3.0	\$4.0	\$5.0	\$6.0
\$50	\$303	-\$7.3	-\$6.4	-\$5.5	-\$4.5	-\$3.6	-\$2.6	-\$1.7	-\$0.7	\$0.3	\$1.2	\$2.2	\$3.2	\$4.2	\$5.2	\$6.3
\$75	\$324	-\$7.0	-\$6.1	-\$5.2	-\$4.3	-\$3.3	-\$2.4	-\$1.4	-\$0.4	\$0.5	\$1.5	\$2.5	\$3.5	\$4.5	\$5.5	\$6.5
\$100	\$345	-\$6.8	-\$5.8	-\$4.9	-\$4.0	-\$3.0	-\$2.1	-\$1.1	-\$0.2	\$0.8	\$1.8	\$2.8	\$3.8	\$4.8	\$5.8	\$6.8
\$125	\$367	-\$6.5	-\$5.6	-\$4.6	-\$3.7	-\$2.8	-\$1.8	-\$0.8	\$0.1	\$1.1	\$2.1	\$3.1	\$4.1	\$5.1	\$6.1	\$7.1
\$150	\$388	-\$6.2	-\$5.3	-\$4.4	-\$3.4	-\$2.5	-\$1.5	-\$0.6	\$0.4	\$1.4	\$2.4	\$3.3	\$4.3	\$5.3	\$6.4	\$7.4
\$175	\$409	-\$5.9	-\$5.0	-\$4.1	-\$3.1	-\$2.2	-\$1.2	-\$0.3	\$0.7	\$1.7	\$2.6	\$3.6	\$4.6	\$5.6	\$6.6	\$7.7
\$200	\$430	-\$5.7	-\$4.7	-\$3.8	-\$2.9	-\$1.9	-\$1.0	\$0.0	\$1.0	\$1.9	\$2.9	\$3.9	\$4.9	\$5.9	\$6.9	\$7.9

<sup>1</sup> Assuming gifts are received over the course of a five-year period, e.g., in a \$100mm capital campaign, \$20mm is received each year.

<sup>2</sup> Assuming 3% tuition growth.

policy, or to the endowment payout rule, operating policies, strategic plans, or capital campaign objectives. Use of the portfolio/enterprise risk tool by the Investment Committee should be coordinated with use by the Finance Committee, and perhaps the Development Committee. The Audit Committee—particularly if it is undertaking an enterprise risk management study, as so many are—would also have a keen interest in what the portfolio's impact risk is to the enterprise's business model.

Thus, the key to endowment performance lies not only in portfolio construction and implementation, but also in certain major operating variables. When operating variables such as debt and operating liquidity become the key drivers—leading to forced sales of marketable securities, for example—then comparative endowment performance is meaningless absent the broader, enterprise context. A portfolio/enterprise risk tool can address the context, link the portfolio and enterprise, and through *enterprise* measures increase the probability that endowment performance will match the institution's business model and spending needs over the long term. ■

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**For more information on our enterprise advisory capabilities and our portfolio/  
enterprise risk tool, please contact us at [contactca@cambridgeassociates.com](mailto:contactca@cambridgeassociates.com).**

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