



C A M B R I D G E A S S O C I A T E S L L C

# INVESTING ACROSS THE INSTITUTION: Managing Financial Resources Through an Internal Bank

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# Investing Across the Institution: Managing Financial Resources Through an Internal Bank

While the term “internal bank” may conjure up images of a brick and mortar banking operation, it actually refers to a series of cash flow and balance sheet management strategies that institutions employ to more efficiently manage financial resources. By centralizing capital funding and operating assets, institutions can decrease required cash balances, increase expected investment returns, better manage debt capacity, and direct funds to institutional priorities. The degree to which these strategies are employed varies depending on an institution’s organizational structure, governance, and goals.

Broadly speaking, internal bank functions can be grouped into two categories, operating and capital. An operating bank can increase the efficiency of cash flow management and the investments of related assets, while use of a capital bank can consolidate and/or rationalize management of institutional leverage.

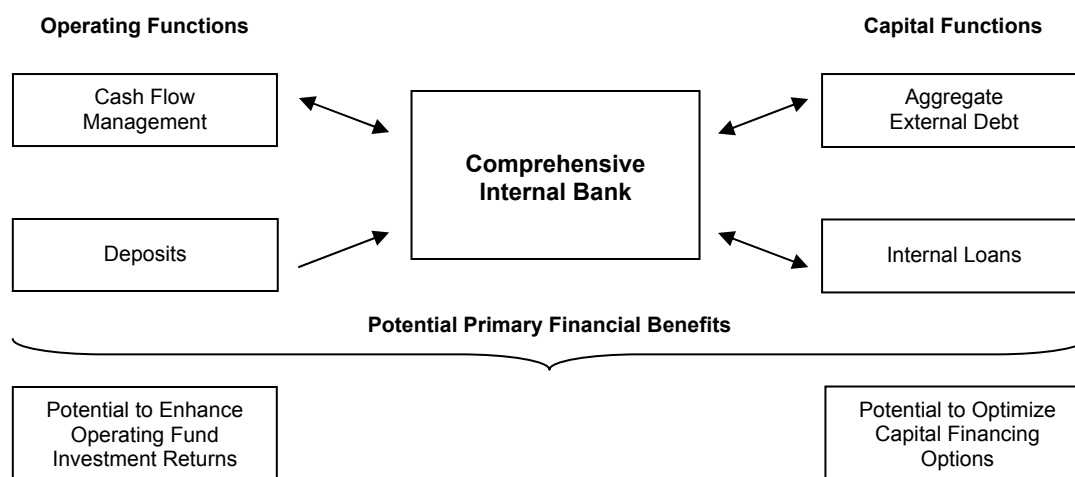
This report reviews each type of bank in detail. The discussion covers the rationale for each bank type and implementation considerations. In addition, the report (1) offers some sample modeling to

illustrate the interrelated nature of balance sheet and cash flow decisions for an internal bank; (2) outlines some policy and governance considerations for managing an internal bank; and (3) covers both financial statement structure for an internal bank and how it “appears” at the consolidated financial statement level.

## Internal Bank Overview

A “comprehensive” internal bank integrates the operating (centralized cash flow and operating fund asset management) and capital functions (funding and borrowing strategies) to maximize institutional financial resources. By consolidating and integrating certain cash, operating asset, and debt management functions in one centrally managed portfolio, an institution can realize more efficient cash flows, achieve greater investment returns, and optimize capital financing options. The internal financial statements of a comprehensive bank provide a holistic picture of non-endowment institutional resources and investments. The summary schematic in Figure A depicts a comprehensive

**Figure A. Functions of a Comprehensive Internal Bank**



internal bank’s functions. In addition, for greater granularity (and because each type of bank can be run on a stand-alone basis), Exhibit 1 summarizes the basic functions and service level continuums for both bank types.

## The Operating Bank

On the operating side, an internal bank pulls together cash and other funds used to operate the institution on a daily basis. The functions of the operating bank can be considered along the continuum in Figure B.

### Rationale

If left to their own devices, the managers of each operating unit within an institution will maintain cash balances sufficient to meet their own perceived liquidity requirements. This rational behavior results in too much cash at a macro level since an institution’s aggregate liquidity requirement is less than the sum of the liquidity requirements of each operating unit because the cash flows of these units are not perfectly correlated (i.e., departments’ cash outlays do not occur simultaneously). Therefore, departmentally controlled cash does not allow an institution to benefit from efficiencies afforded by cash flow strategies managed according to an institutional perspective.

When an institution manages cash flow centrally, it minimizes departmental cash hoarding and relieves departments of cash management responsibilities for which they would otherwise need to employ staff. Aggregate cash flow analysis determines the minimum level of cash needed to meet liquidity needs (it may be zero, if an institution has access to a line of credit) and identifies “excess” cash balances at the macro, or institutional, level. These formerly underused operating assets can then be more efficiently invested in higher-expected-return assets such as longer duration fixed income and/or the units of a broadly diversified, equity-dominated investment pool such as the endowment. The effectiveness of the operating bank’s asset management can be measured on the consolidated balance sheet: over the long term, a successful bank increases operating asset value and thus net assets (assets minus liabilities) by earning greater returns on the operating assets (assuming that the additional returns are not spent in their entirety).

At the most “sophisticated” end of the operating bank spectrum, the bank adds deposit services to cash and operating fund management functions. Cash balances “owned” by various institutional entities become “deposits” in the bank. Depositors retain ready access to their capital, may earn a return on their capital, and may pay a fee for participation in the operating bank. “Excess” returns earned by the bank over any interest payable to depositors

**Figure B. Operating Bank Service Continuum**  
(Cash Flows and Working Capital Management)

	Functions	Expected Efficiencies
<b>None</b>	Decentralized units manage their own cash flow	N/A
<b>Centralized Functions</b>	Central maintains individual cash accounts for each unit	Units benefit from centralized expertise
<b>Centralized Management</b>	Central controls and manages aggregate cash flow	Lack of perfect correlation with respect to units’ respective cash flows creates opportunity to reduce required cash balances at the aggregate level and to free assets for investing with a higher target return
<b>Full Service Bank</b>	Units deposit cash balances with Central; Central guarantees access to principal and pays interest to depositors	Centralized cash flow management allows reduced minimum cash balances; Central actively manages its assets and investments to increase expected return

can provide additional flexibility to an institution, which can choose to allow these assets to accumulate in the bank's equity surplus account or to pay them out, in whole or part, as a "dividend" to central administration, and/or use them to support strategic plan priorities that may not otherwise receive funding, at least in the near term. In addition, the operating bank can "elect" to invest a portion of its portfolio in mission-related activities such as faculty mortgages, student loans, or local real estate.

## Asset Allocation

The long-term, strategic orientation of the endowment or investment pool normally leads an institution to maintain minimal cash balances within it. In contrast, the primary objective of the operating fund portfolio is to maintain an appropriate level of cash to meet the fluctuating daily cash flow needs of the organization. Even though certain elements of an institution's cash flows are fairly predictable (e.g., tuition receipts and compensation payments), their management requires constant attention and analysis. In many institutional settings, cash balances often exceed predicted cash flow needs because they are regarded as a necessary buffer against the risk of failing to meet daily/unexpected cash needs. Effective cash flow management enables efficient use of resources and avoidance of late fees and penalties from vendors and other partners and, in some cases, involves interim use of a line of credit to meet unexpected demands.

Setting an operating bank's asset allocation should include consideration of (1) how best to manage cash needs and (2) how to define/quantify risk tolerance and then maximize expected investment return subject to it. In particular, the following factors are critical determinants of risk tolerance:

- Level of equity surplus to maintain (typically expressed as a percentage of investments);

- Use of and dependence on expected net bank "revenue" (e.g., retention within bank to build reserves, annual operating budget contribution coverage of ongoing central administrative or other annual expenses versus special one-time projects);
- Dividend distribution policy (determination of importance, scale, timing, reserve requirements, and recipients); and
- Flexibility with respect to using a line of credit to cover short-term needs.<sup>1</sup>

Institutions should establish appropriate risk/return benchmarks and policies, including liquidity levels, performance measurement standards, and equity surplus reserve levels needed to provide a buffer against expected investment volatility.

Typically overseen by an internal investment committee, the operating bank manages the liquidity needs and expected return profile of the operating fund portfolio, given current risk tolerances and market conditions, by adjusting the investment allocation among cash, fixed income, endowment pool units, and other longer-term investment strategies. The greater the importance of maximizing the operating fund growth or generation of "excess" cash flow, the higher the allocation to equity assets; the greater the importance of avoiding stress on liquidity and maintaining stability in asset values, the higher the allocation to cash and high-grade fixed income.

Investment and implementation decisions for operating bank assets require the same level of attention that endowments do. Recent market events remind us that even short-term, liquid investment vehicles can involve significant risk and that the focus of risk management for an

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<sup>1</sup> Importantly, investors should recognize that substantial lines of credit may be difficult to secure in extreme market environments and should recognize that these lines are not necessarily guaranteed to be available when needed, whether due to covenant issues, lender distress, etc.

operating fund should be on managing the opposing objectives of maintaining liquidity and market value to meet daily liquidity requirements and maximizing expected total risk-adjusted return. Exhibit 2 graphically depicts the expected long-term risk and return characteristics of cash, bonds, and a diversified endowment-like investment (based on the average asset allocation of U.S. college and university endowments on June 30, 2010) and Exhibit 3 presents supporting assumptions. While the expected return is highest for the diversified investment, its downside risk is also the greatest.

## Implementation Considerations

**Financial Statements.** Funds placed in the operating bank by schools, departments, and other units are thought of as demand deposits carried as liabilities on the bank's balance sheet at book value. On the institution's balance sheet, these funds are accounted for as assets. Our research indicates that institutions with internal banks have the financial systems in place to look at this from both an internal banking and an institutional perspective. More discussion of these considerations is provided in the Financial Statement Impact section of this report.

**Fees.** The operating bank can charge predetermined oversight fees to depositors on the basis of market value of the deposits, budgeted investment costs, or the guaranteed rate to investors (e.g., the 91-day T-bill rate). Proceeds of these fees can be used to fund bank operations and/or build operating fund and reserve values.

**Participation.** Participation in the operating bank may be voluntary or mandatory—this policy is ultimately driven by institutional culture and expectations (although it may be worth noting that most institutions we have evaluated require participation).

**Guaranteed Returns.** The most straightforward applications of the concept of the operating fund as an operating bank is to guarantee access to deposits, to pay depositors an interest rate based on current short-term rates and average deposit balances, and to retain any investment income above this rate for use by the institution as a whole. The rationale for this policy is that the institution can access higher risk-adjusted return investments not available to individual depositors. Because the institution absorbs the risk of investment return volatility by guaranteeing the principal of the short-term demand deposits and by providing a predictable return to depositors, it is justified in retaining an investment risk premium (i.e., the difference between short-term interest rates and actual total return).

**Stabilization Reserve.** Banks represent the difference between assets (investments) and liabilities (deposits) as owner's equity. In an operating bank, the difference (if any) shows up as a fund balance that may be designated as a stabilization reserve or equity surplus. The reserve serves as a buffer, absorbing variations in the market value of bank assets and ensuring that the operating fund can meet its obligations. Although it may represent only a small fraction of the total operating fund, the stabilization reserve absorbs the investment risk and accumulates investment return in excess of interest payments to depositors and dividend payments. An institution can establish an operating bank with little or no reserve or with a plan to build one over time with the funds generated by the banking functions; alternatively, at the beginning, an institution might fund such a reserve with unrestricted assets. As the bank grows its equity surplus, it will have greater flexibility to support institutional priorities. For example, an adequate reserve can offer regular support to the operating budget, lead to a steady stream of "dividends" for designated recipients, or fund one-off projects.

**Line of Credit.** Some operating banks borrow from a line of credit to reduce required maintenance levels of cash on hand. If an institution has the borrowing capacity to take on short-term debt and can access favorable borrowing rates, this option allows the institution to maintain a lower “steady state” or maintenance level cash balance. When unexpected cash needs exceed cash on hand, a line of credit provides an infusion of cash that allows the institution to avoid selling long-duration assets (perhaps during adverse markets) to meet a temporary short-term mismatch between cash needs and maintenance level cash balances. Alternatively, the line of credit could be used to top-up the maintenance level of cash if the investment markets are experiencing a difficult period; this would avoid sale of the depressed investments, which would convert the temporary loss to permanent one. However, since the use of a line of credit may affect an institution’s debt capacity, credit rating, and borrowing costs, the institution should coordinate its debt and internal banking policies to ensure that this type of borrowing is effectively managed.

## The Capital Bank

On the capital side, an internal bank pulls together institutional borrowing and financing strategies used to fund capital initiatives. The capital bank manages external liabilities, which may include all or a portion of external debt, and internal assets such as internal loans and internal capital investments. The functions of the capital bank can be considered along the continuum in Figure C.

### Rationale

External debt transactions have traditionally been centralized because debt is issued by the institution, but centralizing this function has not necessarily meant that the central administration takes a holistic view of institutional capital needs. In its conventional role, the central administration serves as a conduit for securing project-specific debt and passes the actual debt service costs associated with specific projects to departmental borrowers. This approach to institutional debt obligations is more efficient than departmental management, as debt administration responsibilities and expertise reside in one central area. Whether units are controlling their borrowing or the institution is matching individual projects to individual financing options, this micro approach will likely result in a more conservative, and often more costly, approach to capital financing.

**Figure C. Capital Bank Service Continuum**  
(Debt Management)

	Functions	Expected Efficiencies
<b>None</b>	Units borrow separately	N/A
<b>Centralized Functions</b>	Central negotiates individual borrowings based on units’ distinct needs; associated debt service requirement passed to units	Units benefit from centralized expertise
<b>Centralized Management (Portfolio Approach)</b>	Central manages external debt issuance to meet near- or intermediate-term capital requirements; terms passed through to internal borrowers	Increased scale allows more proactive debt management; aggregation allows centralized management of debt capacity utilization and of credit rating.
<b>Full Service Bank</b>	Central lends internally and borrows externally and may assume duration mismatches; Central actively manages external borrowing capacity, credit ratings, fixed/floating exposure, term structure, etc.	Maximize use of available internal funds; reduce capital costs; internal borrowers gain budgetary stability from fixed terms for internal loans

A centralized management, or portfolio, approach to the institution's capital financing requirements moves a step beyond "centralized functions" on the capital bank spectrum. Strategically, the portfolio approach pulls together all of the institution's borrowing needs, so the capital bank can elevate institutional priorities over micro departmental priorities. Economically, the portfolio approach aggregates risk management, borrowing needs, and the timing of the spending from debt proceeds, so the capital bank more efficiently accesses debt for a series of projects. It allows institutional control of the level and characteristics of total outstanding institutional debt and may reduce the overall borrowing needs. Since debt capacity and credit ratings are assigned to the institution as a whole, this approach enables a strategic alignment of the institution's trade-offs between the overall risk profile and resource requirements over the long term.

This macro approach to managing an external debt portfolio also offers greater flexibility and allows access to a more diverse array of financing options, such as fixed, synthetic fixed, or variable rate debt; taxable issues; swaps; and multiple durations. The aggregate debt portfolio spreads external debt terms over multiple internal projects and borrowers, which increases the capacity to absorb fluctuations and risk associated with certain financing vehicles. In addition, a more diverse mix of financing options tends to reduce the overall cost of capital. For example, relative to fixed rate debt, variable rate debt is more volatile but, at a given point in time, typically offers a lower interest rate.

At the farthest end of the implementation spectrum, a capital bank also includes a self-funded internal loan program. Available internal financial resources can include (1) an initial investment of equity surplus to fund capital banking functions, (2) surplus accumulated from resources generated by internal capital banking functions (e.g., earnings

from investment returns, interest charges), and (3) other available internal funds from institutional or departmental reserves.<sup>2</sup> An internal loan program offers interest earning opportunities for those with available funds and potentially lower financing costs for those with borrowing needs. Internal loans also enable the capital bank to reduce external borrowing reliance while maximizing use of institutional resources. This option is especially attractive when financing low dollar and/or short-term initiatives because the capital bank can be flexible when constructing lending terms.

One objective of the capital bank's portfolio approach to debt management is to offer equitable and consistent borrowing terms to all projects within the institution, regardless of the source of capital (i.e., external or internal funds). To achieve this goal, a capital bank will spread the borrowing costs of multiple external debt issues across a number of borrowers and charge borrowing units a blended interest rate. The blended rate is consistently applied to individual borrowers and usually adjusted periodically for new loans; consequently, it serves both to instill transparency in the borrowing process and provide predictability for the internal borrowers' budgeting purposes. It is calculated by adding the institution's cost of capital and administrative expenses to a stabilization rate designed to compensate the capital bank for risk—the capital bank's variable costs (e.g., floating rate external debt), which could drive the actual cost of capital above the fixed rate charged to its internal borrowers. While participating in the capital bank most often lowers the overall borrowing costs for individual units, units are usually willing, in the short term, to pay slightly higher debt costs in exchange for a predictable interest rate and debt service expense even when the capital bank's offered fixed rate temporarily costs more than a directly negotiated externally offered variable rate.

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<sup>2</sup> These types of loans may also be made from an operating bank, in which case they are recorded as operating bank assets.



For some institutions, the impetus for a capital bank is a desire to generate additional resources for institutional initiatives such as components of a strategic plan and/or central operations. Most organizations are faced with limited unrestricted resources and turn to additional debt to finance strategic initiatives. Capital banking activities can grow the institution's available financial resources, expanding resource generation beyond the traditional unrestricted operating revenues, restricted research grants, and endowment funds. The increase in unrestricted net assets generated by the bank can be invested in mission-related projects such as facilities, land banking, student loans, or bridging receivables on federal grants.<sup>3</sup> In addition, banking policies may be set up to invest revenue to cover central operations that benefit all units, such as a central development office.

For example, at one public research university, the introduction of variable rate debt in the mid-1980s led departments to request a predictable fixed rate, so they could better control their budgets. In addition, the Treasurer's Office wanted to establish a stabilization reserve, or equity surplus, to buffer the university from interest rate spikes. An internal lending rate was introduced to accomplish the objectives of both the department and the treasurer. After seven years, the capital bank's reserves exceeded risk requirements, and the university began using the reserve to fund internal loans.

Mirroring the operating bank situation, the capital bank's contribution to strategic planning and central initiatives may be immediate if it is funded sufficiently at its inception. Alternatively, if the institution relies on resulting capital banking surplus equity to fund initiatives, it may take a few years to generate sufficient reserves to draw upon.

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<sup>3</sup> These types of loans may also be made from an operating bank, in which case they are recorded as operating bank assets.

## Implementation Considerations

**Stabilization Reserve.** Just like in an operating bank, the capital bank's stabilization reserve or equity surplus serves as a buffer; however, instead of absorbing variations in the market value of bank assets and ensuring that the operating fund can meet its obligations, it provides a buffer against interest rate risk, even though it may represent only a small fraction of the total capital financing obligations. The reserve can also enable an institution to expand internal lending capacity and reduce its dependence on external borrowing. As with an operating bank, a capital bank can be established with minimal, or even no reserves, with a plan to grow an equity surplus by directing resources generated by the bank into the reserve. Thus, the capital bank functions fuel the expansion of internal bank resources and capacity.

**Internal Loan Rates (Blending).** As noted above, a blended internal cost-of-funds rate is calculated by adding the external cost of funds, an administrative charge, and a stabilization rate that serves as an interest rate buffer. The blended rate is designed to cover administrative expenses and insulate the internal interest rate from changes due to different terms that may apply to new external debt issues or variable rate fluctuations.

The level of the interest rate buffer is determined by portfolio volatility and by whether the institution places priority on a lower or a more predictable internal cost of borrowing. Figure D shows the impact of these factors in two sample calculations. In Example 1, the higher external rate is more predictable (fixed), allowing for a stabilization rate. In Example 2, the lower external rate is floating, requiring a higher stabilization rate to insulate the blended rate from fluctuations. A lower external interest rate may be secured with variable rate debt that is subject to more volatility; a higher external fixed interest rate provides a buffer that reduces the chance that the internal rate will need to be adjusted over time.

## Figure D. Determination of Internal Loan Rates

Example 1: Higher but more stable (i.e., fixed rate) external cost of capital leading to a lower stabilization rate (buffer)

<b>Interest Cost of External Debt</b>	+	<b>Stabilization Rate</b>	+	<b>Premium for Administrative Costs</b>	=	<b>Blended Rate</b>
5.34%	+	0.10%	+	0.10%	=	5.54%

Example 2: Lower but less stable (i.e., floating rate) external cost of capital resulting in a higher stabilization rate (buffer)

<b>Interest Cost of External Debt</b>	+	<b>Stabilization Rate</b>	+	<b>Premium for Administrative Costs</b>	=	<b>Blended Rate</b>
3.79%	+	0.51%	+	0.10%	=	4.40%

A key factor in determining the blended rate is who absorbs the capital risk: the capital bank or the internal borrowers. If the capital bank has a well-funded stabilization reserve, the capital bank can absorb temporary fluctuations in interest rates without passing the higher rates on to internal borrowers. If the bank does not have this level of reserve, a higher blended rate for internal borrowers is necessary to serve as a buffer for the external debt portfolio volatility.

**Internal Loan Policies.** Some capital banks administer internal loans by leveraging a combination of funding from external debt and internal reserves. Considerations for internal loan offerings include:

- What projects are eligible for internal loans (e.g., capital requirement)?
- Is there a ceiling on the internal loan portfolio, and if so, is that ceiling determined by a ratio of liabilities to assets or another predetermined metric?
- Is there a project size minimum? Maximum?
- What are the terms of repayment: payment schedule, rates?
- Will the internal loan pool fund operating deficits?

**Centralized Debt Levels.** A full service capital bank allows the external debt service payments to be divorced from the internal users' debt service payment and enables the institution to gain

efficiencies through “recycling” when the internal users' debt repayment schedules are more aggressive (i.e., shorter than that of the external debt).

For example, a capital bank may have structured an external debt issue that has only one principal payment at the end of its 30-year term (known as a bullet maturity). At the same time, the capital bank has structured amortizing loans to internal borrowers over a 20-year period at a fixed blended rate. As internal payments come in before the external debt bullet payment is due, those funds can be made available for other internal loans. This type of recycling increases the capital resources available for all institutional units and reduces the reliance on *additional* external financing, each of which brings additional issuance costs, administrative burdens, and often higher interest rates, especially if an institution is reaching its debt capacity and needs to turn to higher cost taxable debt. Increasing internal financing capabilities by “recycling” external debt proceeds prior to the maturation of the external debt, therefore, introduces more flexibility at a potentially lower cost.

**Other Policy Considerations.** Additional questions to consider when implementing an internal capital bank include:

- Will the bank have a limit on the variable rate debt component of the debt portfolio?

- What will the policy be with respect to derivative usage?
- Is the bank allowed to access taxable debt?
- How often will internal interest rates be evaluated and reset?
- When must the internal debt be repaid?

## Modeling to Inform Internal Bank Decisions

Most managers of internal banks use analytical models to explore the alternatives for structuring their bank. To inform decisions about liquidity and investment strategy, models can look at the impact of changes in asset allocation (given performance assumptions) and inflation, deposit levels and interest rates, expected annual operating budget contributions, required minimum cash balances, external debt structure and internal loan programs, use of a line of credit, and expected dividend payments. Each institution has a unique set of conditions that determines the emphasis of modeling efforts, the specific variables to consider, and the results to measure and evaluate for a given time period. Internal bank outcomes and measurements such as equity surplus, cost of capital, and return on assets are sensitive to starting values of balance sheet components, market conditions, and institutional policies such as minimum cash levels and size of a required dividend and/or payout to the operating budget. Therefore, it is difficult to make generalizations about internal bank characteristics and to predict future outcomes. Nonetheless, a review of some examples provides useful insights into the most critical drivers of an internal bank's health.

The models presented herein were designed to compare and contrast three key variables and to illustrate policy and management considerations. Each model assumes an institutional policy that requires a starting minimum cash balance (\$100

million) that grows with inflation to maintain adequate liquidity. Additional assumptions for these simplified models are shown on Exhibit 4. (See the Appendix for detailed output from one model.) The three key variables evaluated are:

- Asset allocation: a diversified portfolio versus a pure fixed income portfolio (Exhibit 5);
- Dividend policy: no dividend versus an inflation-adjusted dividend (Exhibit 6); and
- Equity surplus: a generous starting equity surplus versus a relatively small one (Exhibit 7).

To evaluate the impact of various investment market conditions, we present three market scenarios for each model.

- Scenario 1: Returns are equal to the long-term expected return for each of the next 11 years.
- Scenario 2: Returns are 0% for years one through three and then revert back to long-term expected returns in year four and beyond.
- Scenario 3: Returns are 2 standard deviations below the long-term return expectation in year one, 1 standard deviation below it in year two, 0% in year three, and then revert to long-term expected returns in year four and beyond.

These stylized market scenarios are unlikely to unfold exactly as depicted, but the conditions they illustrate enable us to evaluate the impact of market performance for differing asset allocation, dividend payout, and equity surplus policies.

### Model: Asset Allocation

In Exhibit 5, we compare the volatility and downside risk of a portfolio invested 100% in U.S. fixed income<sup>4</sup> to a diversified portfolio invested 25% in U.S. fixed income and 75% in endowment units (as represented by the average asset allocation of U.S. colleges and universities as of June 30, 2010).

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<sup>4</sup> The fixed income portfolio is split equally between U.S. government bonds and investment-grade bonds.

To evaluate the impact of asset allocation decisions in varying market conditions, we use our capital asset pricing model assumptions (long term, valuation agnostic) for expected risk, return, and correlation. These examples show that during weaker markets, both asset allocation strategies require this internal bank to dip into equity surplus *and* sell investment assets to maintain minimum cash requirements. In each weak market scenario (2 and 3), the bank with the diversified portfolio finishes with a higher investment asset value and higher equity surplus. In Scenario 2, when the portfolio returns rebound in year four, the diversified portfolio regains value more quickly than the 100% fixed income portfolio because of its higher expected return. In Scenario 3, the 100% fixed income portfolio maintains more value in the difficult market conditions, but the diversified portfolio has recovered enough to have a greater value in year five and more equity surplus in year six than the fixed income portfolio.

### **Model: Dividend Policy**

Exhibit 6 looks at the more diversified portfolio (25% U.S. fixed income/75% endowment units) with and without a required dividend payment. We assume that the dividend starts at \$25 million and increases annually by inflation. In Scenario 1, the dividend-paying bank is financially viable. However, in adverse markets, the equity surplus of the dividend-paying bank is eroded by the steady dividend drain. While the equity surplus is spent by year 11 in Scenario 2, in Scenario 3 the equity surplus “goes negative” in year three and never recovers. As an institution sets bank payout policies, this type of modeling exercise can help determine when and under what conditions an internal bank will be capable of contributing to the institution’s operating budget and/or paying a dividend steadily.

### **Model: Scale of Equity Surplus**

The equity surplus, the resources measured by the bank’s assets minus liabilities, is a major determinant

of the bank’s ability to absorb risk created by adverse market conditions. Exhibit 7 compares a bank that starts with a \$50 million equity surplus<sup>5</sup> to one that has \$150 million; both banks invest in the diversified portfolio (25% U.S. fixed income/75% endowment units). Neither bank pays dividends in this example. The bank with the larger initial equity surplus does not “go negative” in any market condition as it is more than adequately capitalized, but the bank that started with the lower equity surplus “goes negative” for four years in Scenario 3 and then slowly recovers (Exhibit 7).

## **Governance**

Decisions about goals, risk, asset allocation, and debt will be ongoing for a comprehensive internal bank. As the internal bank matures, new decisions will arise about equity surplus or net worth requirements, investments of assets, dividend policies, reserve levels, debt policies, borrowing mechanisms, and the level and form of mission-related support.

Having elected to initiate an operating, capital, or comprehensive internal bank, institutions need to determine (1) who is responsible for the various daily bank functions, (2) who will have oversight responsibility with regard to the daily functions and execution (adherence to policies), and (3) who will set the policies and monitor bank activity at a high level.

Depending on the scope of the internal bank, day-to-day functions are typically conducted by an individual or team of institutional employees. Oversight and policy-setting responsibilities are usually carried out by another group made up of internal and, in some cases, external stakeholders. When establishing the governance structure, the

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<sup>5</sup> Correspondingly, this bank has \$100 million less in assets versus the better capitalized bank with \$150 million in equity surplus.

institution should ask a series of questions: If the investment committee of the institution’s board is charged with oversight of the endowment’s investments, does that same committee review and approve operating fund investments? Is there another group responsible for managing the institution’s balance sheet? Who will review current policy effectiveness and implement new policies when needed? An effective governance structure may require reliance on a team approach to decision making, since decisions often impact treasury, finance, and investment management functions.

## Financial Statement Impact

All internal banks are components of larger institutions rather than separate entities. However, some institutions can and do generate financial statements for the internal bank, as a separate and distinct unit of the institution, to measure benefits and risks. We believe this represents best practice.

In Figure E we provide an introduction to the financial statements of the internal bank (cash flow statement and balance sheet) and how the internal bank’s operations appear on the institution’s consolidated balance sheet. For clarity, the operating bank and the capital bank line items are denoted with an “O” or a “C.”

### Figure E. Sample Financial Statements

#### Internal Bank: Cash Flow Components

Cash Inflows - Cash Outflow = Change in Cash and Cash Equivalents

##### “Revenue” and Inflows

###### Revenue

Investment Return (O)  
 Fees Charged (O or C)  
 Interest Received  
     Student Loans (O or C)  
     Faculty Mortgages (O or C)  
     Internal Loans (C)

###### Inflows

Net Increases  
 Deposits (O)  
 External Borrowings (C)  
 Equity Contributions (O or C)

##### “Expenses” and Outflows

###### Expenses

Interest Paid on Deposits (O)  
 Interest Paid on External Borrowings (C)  
 Operating Budget Contributions (O or C)  
 Dividend Payments (O or C)

###### Outflows

Net Increases  
 Investments (O)  
 Student Loans (O or C)  
 Faculty Mortgages (O or C)  
 Internal Loans (C)

#### Internal Bank: Balance Sheet

##### Assets

Investments (O)  
 Cash  
 Fixed Income  
 Units (Endowment/Inv Pool)  
 Mission-Related Investments  
 Receivables  
     Student Loans (O or C)  
     Faculty Mortgages (O or C)  
     Loans to Internal Borrowers (C)

##### Liabilities

Deposits (O)  
 External Debt (C)  
 Equity Surplus  
 Accumulated Bank  
     Net Income (O or C)

#### Institution: Consolidated Balance Sheet

##### Assets

Investments  
 Cash  
 Fixed Income  
 Units (Endowment/Inv Pool)  
 Mission-Related Investments  
 Receivables  
     Student Loans  
     Faculty Mortgages

##### Liabilities

External Debt

##### Net Assets

Net Asset Balances

On the internal bank's balance sheet, deposits are liabilities because they represent obligations to the departments that have deposited funds, and loans to internal borrowers are assets because the departments have an obligation to repay them. However, on the institution's consolidated balance sheet neither "exists." In Figure E, the internal bank line items that "disappear" on the institution's consolidated balance sheet are noted in italics on the internal bank's balance sheet.

## Conclusion

There are compelling reasons for institutions to establish internal banks, particularly for decentralized organizations that may be holding significantly more operating cash than necessary or that wish to pursue a sophisticated external debt strategy. Internal banks provide a range of opportunities, including the ability to invest assets and/or manage external debt exposures more aggressively and to fund more strategic initiatives. An internal bank also provides a construct to unify governance and synthesize key financial functions and information. It is important to note that the scope of an internal bank's functions can expand over time as institutional comfort and resources grow. Any step along the service continuum for the operating and/or capital banks is a positive one for an institution seeking to generate more resources through increased internal efficiencies.

However, the decision to establish an internal bank should not be entered into lightly, as success cannot be achieved without thoughtful governance, planning, and sufficient start-up resources. Keys to success include (1) thorough consideration and communication of an internal bank's objectives, organization, funding, policies, staffing, and infrastructure; (2) accountability and the availability of internal bank financial statements to monitor bank functions/operations; and (3) performance benchmarking. While the equity surplus can grow over

time, adequate staffing and analytical and accounting capabilities up front are critical for a successful implementation. It is also important to secure commitments from departmental and institutional leaders to centralizing financial functions, management, and resources under the internal bank.

Our research shows that larger institutions with the requisite infrastructure and greater financial, investment, and staff resources are better prepared to implement and manage an internal bank. However, despite the considerable effort required to set up a fully functioning internal bank, all the institutions we have studied realized positive returns on such investment in the form of increased net asset values and/or greater resources to fund ongoing efforts and new initiatives over the intermediate to long term. ■

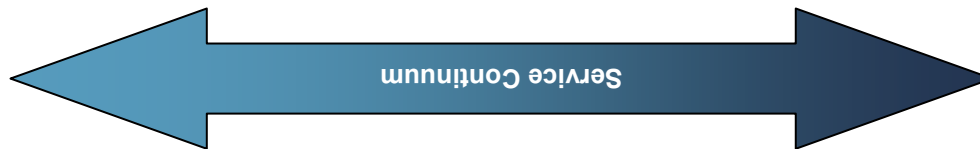
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# EXHIBITS

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Exhibit 1

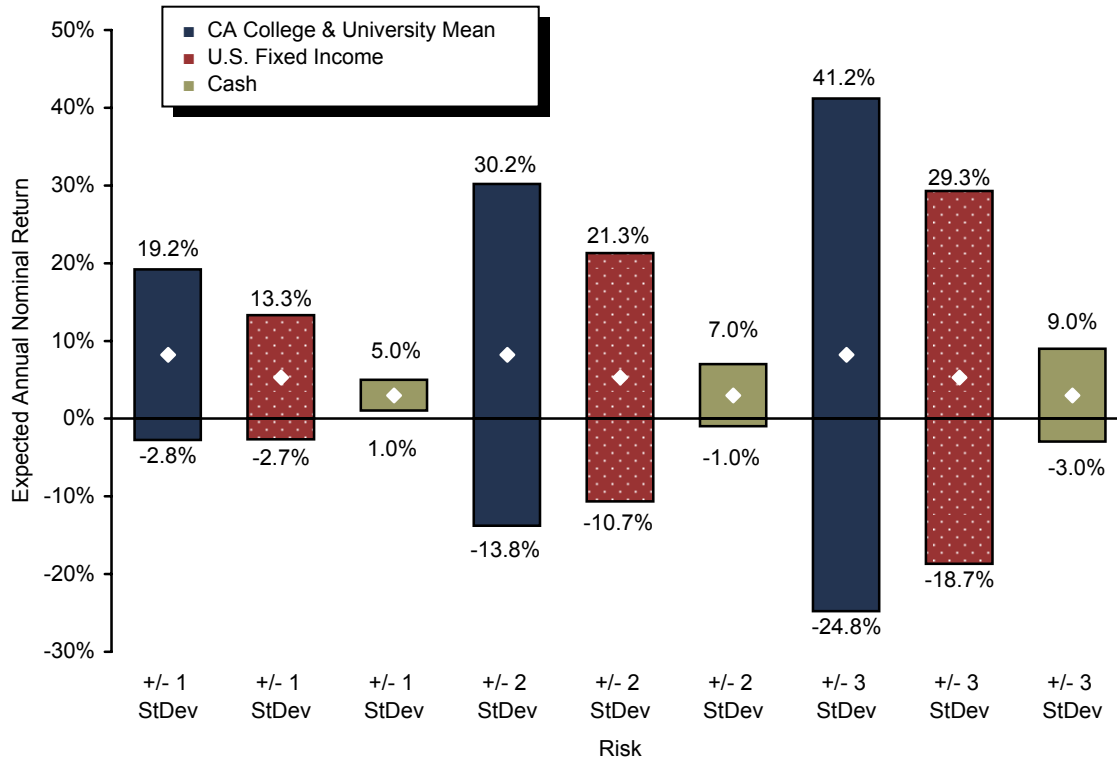
Internal Bank Operating and Capital Functions



	Operating Bank (Cash flows and working capital management)	Capital Bank (Debt management)
None	<ul style="list-style-type: none"> <li>Decentralized units manage own cash flow</li> </ul>	<ul style="list-style-type: none"> <li>Units borrow separately to meet their respective needs</li> </ul>
Centralized Functions	<ul style="list-style-type: none"> <li>Central maintains individual cash accounts for each unit</li> <li>Units benefit from centralized expertise</li> </ul>	<ul style="list-style-type: none"> <li>Central negotiates individual borrowings based on units' distinct needs</li> <li>Associated debt service requirement passed to units</li> <li>Units benefit from centralized expertise</li> </ul>
Centralized Management	<ul style="list-style-type: none"> <li>Central controls and managers aggregate cash flow</li> <li>Lack of perfect correlation with respect to units' respective cash flows creates opportunity to reduce required cash balances at the aggregate level and to free assets for investing with a higher target return</li> </ul>	<ul style="list-style-type: none"> <li>Central manages external debt issuance to meet near/intermediate-term aggregate capital requirements</li> <li>Terms passed through to internal borrowers</li> <li>Increased scale allows more proactive debt management</li> <li>Aggregation allows centralized management of debt capacity utilization and of credit rating</li> </ul>
Full Service Bank	<ul style="list-style-type: none"> <li>Units deposit cash balances with Central</li> <li>Central guarantees access to principal and pays interest to depositors</li> <li>Centralized cash flow management allows reduced minimum cash balances</li> <li>Central actively manages its assets and investments to increase expected return</li> <li>Policies cover:                             <ul style="list-style-type: none"> <li>Terms of deposit (entry, exit, rate);</li> <li>Use of net revenues, if any;</li> <li>Presence and amount of mission-related assets/investments (e.g., faculty loans);</li> <li>Minimum net worth level; and</li> <li>Dividends</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Central operates as a bank—lending internally and borrowing externally—and may, with respect to its assets and liabilities, assume duration mismatches</li> <li>Central actively manages external borrowing capacity, credit ratings, fixed/floating exposure, term structure, etc.</li> <li>Central offers a “fixed” set of “market” terms to internal borrowers, who appreciate the budgetary stability created by the fixed terms</li> <li>Policies cover:                             <ul style="list-style-type: none"> <li>Terms of internal borrowers;</li> <li>Borrower fees, if any;</li> <li>Recycling of external borrowings by Central among internal borrowers with varying time horizons; and</li> <li>Use of net revenue, if any</li> </ul> </li> </ul>



**Exhibit 2**  
**Range of Expected Annual Nominal Returns**



**Percent Probability That Expected Return Will Fall Within Range**

<u>Returns</u>	<u>66%</u>	<u>95%</u>	<u>99%</u>
CA College & University Mean <sup>1</sup>			
Upper Limit	19.2%	30.2%	41.2%
Expected	8.2%	8.2%	8.2%
Lower Limit	-2.8%	-13.8%	-24.8%
Fixed Income <sup>2</sup>			
Upper Limit	13.3%	21.3%	29.3%
Expected	5.3%	5.3%	5.3%
Lower Limit	-2.7%	-10.7%	-18.7%
Cash <sup>3</sup>			
Upper Limit	5.0%	7.0%	9.0%
Expected	3.0%	3.0%	3.0%
Lower Limit	1.0%	-1.0%	-3.0%

Note: Assumed inflation rate is 2.0%.

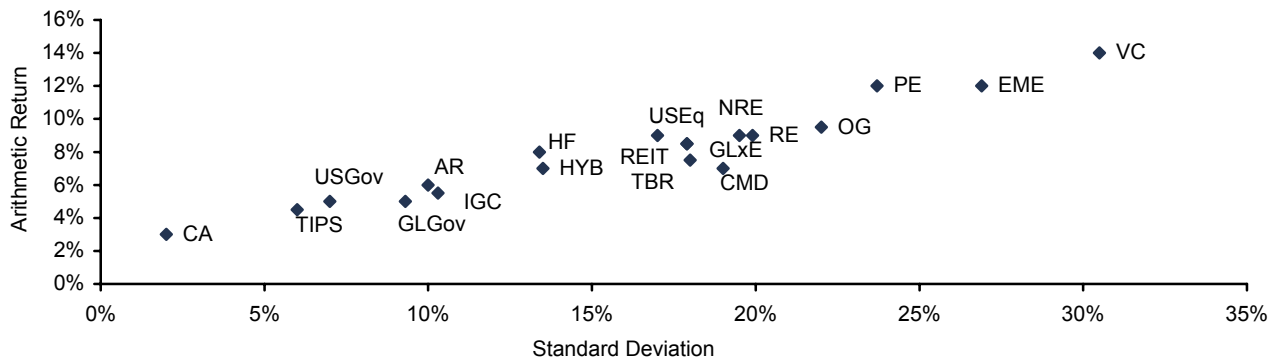
<sup>1</sup> Standard deviation of CA college and university mean allocation is 11.0%.

<sup>2</sup> Represents 50% U.S. government bonds and 50% investment-grade credit. Standard deviation of fixed income is 8.0%.

<sup>3</sup> Standard deviation of cash is 2.0%.

### Exhibit 3 U.S. Equilibrium Asset Class Assumptions

	Nominal Arithmetic Return	Standard Deviation	Range Contains 50% of 25-Year Periods*	Implied Nominal Compound Return
U.S. Equity	9.0	17.0	6.8 - 11.3	7.7
Global ex U.S. Equity	9.0	19.5	6.5 - 11.6	7.3
Emerging Markets Equity	12.0	26.9	8.7 - 15.4	8.9
Absolute Return	6.0	10.0	4.7 - 7.3	5.5
Equity Hedge Funds	8.0	13.4	6.2 - 9.8	7.2
Venture Capital	14.0	30.5	10.3 - 17.9	10.1
Private Equity	12.0	23.7	9.0 - 15.1	9.6
Commodities	7.0	19.0	4.6 - 9.5	5.4
Natural Resource Equity	8.5	17.9	6.2 - 10.9	7.1
Real Estate Securities	8.5	17.9	6.2 - 10.9	7.1
Real Estate	9.0	19.9	6.5 - 11.6	7.2
Oil & Gas	9.5	22.0	6.7 - 12.4	7.4
Timber	7.5	18.0	5.2 - 9.9	6.0
U.S. Government Bonds	5.0	7.0	4.1 - 5.9	4.8
U.S. TIPS	4.5	6.0	3.7 - 5.3	4.3
Global Government Bonds	5.0	9.3	3.8 - 6.2	4.6
Investment-Grade Credit	5.5	10.3	4.1 - 6.9	5.0
High-Yield Bonds	7.0	13.5	5.2 - 8.8	6.2
Cash	3.0	2.0	2.7 - 3.3	3.0



**Correlations**

	USEq	GLxE	EME	AR	HF	VC	PE	CMD	NRE	REIT	RE	OG	TBR	USGov	TIPS	GLGov	IGC	HYB	CA
USEq	1.0																		
GLxE	0.7	1.0																	
EME	0.4	0.4	1.0																
AR	0.4	0.6	0.1	1.0															
HF	0.7	0.8	0.3	0.6	1.0														
VC	0.6	0.6	0.3	0.4	0.5	1.0													
PE	0.6	0.7	0.3	0.4	0.6	0.5	1.0												
CMD	-0.1	0.0	-0.1	0.0	0.0	0.0	0.0	1.0											
NRE	0.6	0.7	0.2	0.5	0.6	0.5	0.5	0.4	1.0										
REIT	0.7	0.7	0.3	0.5	0.7	0.5	0.6	0.0	0.6	1.0									
RE	0.4	0.5	0.1	0.3	0.4	0.3	0.3	0.0	0.4	0.6	1.0								
OG	0.1	0.3	0.0	0.2	0.2	0.1	0.2	0.5	0.4	0.2	0.2	1.0							
TBR	0.1	0.3	0.0	0.2	0.2	0.1	0.2	0.3	0.2	0.2	0.2	0.2	1.0						
USGov	0.2	0.1	0.0	0.1	0.2	0.1	0.1	-0.2	0.1	0.1	0.1	-0.1	0.0	1.0					
TIPS	0.1	0.1	0.0	0.1	0.1	0.1	0.1	-0.1	0.0	0.1	0.1	0.0	0.0	0.5	1.0				
GLGov	0.2	0.4	0.0	0.5	0.5	0.2	0.3	-0.2	0.2	0.4	0.3	0.1	0.2	0.7	0.4	1.0			
IGC	0.4	0.5	0.0	0.6	0.6	0.3	0.4	-0.1	0.4	0.5	0.4	0.2	0.2	0.7	0.3	0.9	1.0		
HYB	0.6	0.6	0.2	0.6	0.7	0.4	0.5	0.0	0.5	0.7	0.4	0.2	0.2	0.4	0.2	0.7	0.8	1.0	
CA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.3	0.2	0.2	0.1	0.0	1.0

Note: Assumed inflation rate is 2.0%.

\* Over 25-year periods arithmetic returns are expected to fall within the range half the time.

## Exhibit 4 Internal Bank Model Assumptions

This exhibit shows the assumptions underlying our internal bank model. Output from the model is shown in Exhibits 5–7.

### Balance Sheet Assumptions

<b>Assets</b>	<b>Initial Balance (\$mm)</b>	<b>Expected Nominal Return</b>	<b>Expected Standard Deviation</b>	<b>Asset Allocation ex Cash</b>
<i>Investments</i>				
Cash	100.0	3.0%	2.0%	N/A
U.S. Fixed Income	125.0	5.3%	8.0%	25.0%
Endowment Pool	<u>375.0</u>	8.2%	11.0%	<u>75.0%</u>
Total Investments	600.0			100.0%
<i>Receivables</i>				
Student Loans	25.0	<b>Nominal Growth Rate</b> 4.0%		
Capital Projects - Internal Loans	150.0	3.0 million	repaid per year	
<b>Liabilities</b>				
Deposits	475.0	3.0%		
External Debt (Face Value - Principal)	150.0	3.0 million	repaid per year	
<b>Equity Surplus</b>				
	150.0			

### Income Statement Assumptions

	<b>First Year (\$mm)</b>	<b>Growth Rate</b>	<b>Expected Nominal Return</b>
<b>Revenue</b>			
Capital Projects: Internal Loan Interest Income	10.5	N/A	7.0%
Student Loans Interest Income	1.4	N/A	5.5%
<b>Expenses</b>			
Operating Budget Payout (Dividend)	0.0	Inflation	
External Debt Interest Expense	9.0	N/A	6%
Interest Paid on Deposits	14.3	N/A	91-Day T-Bills

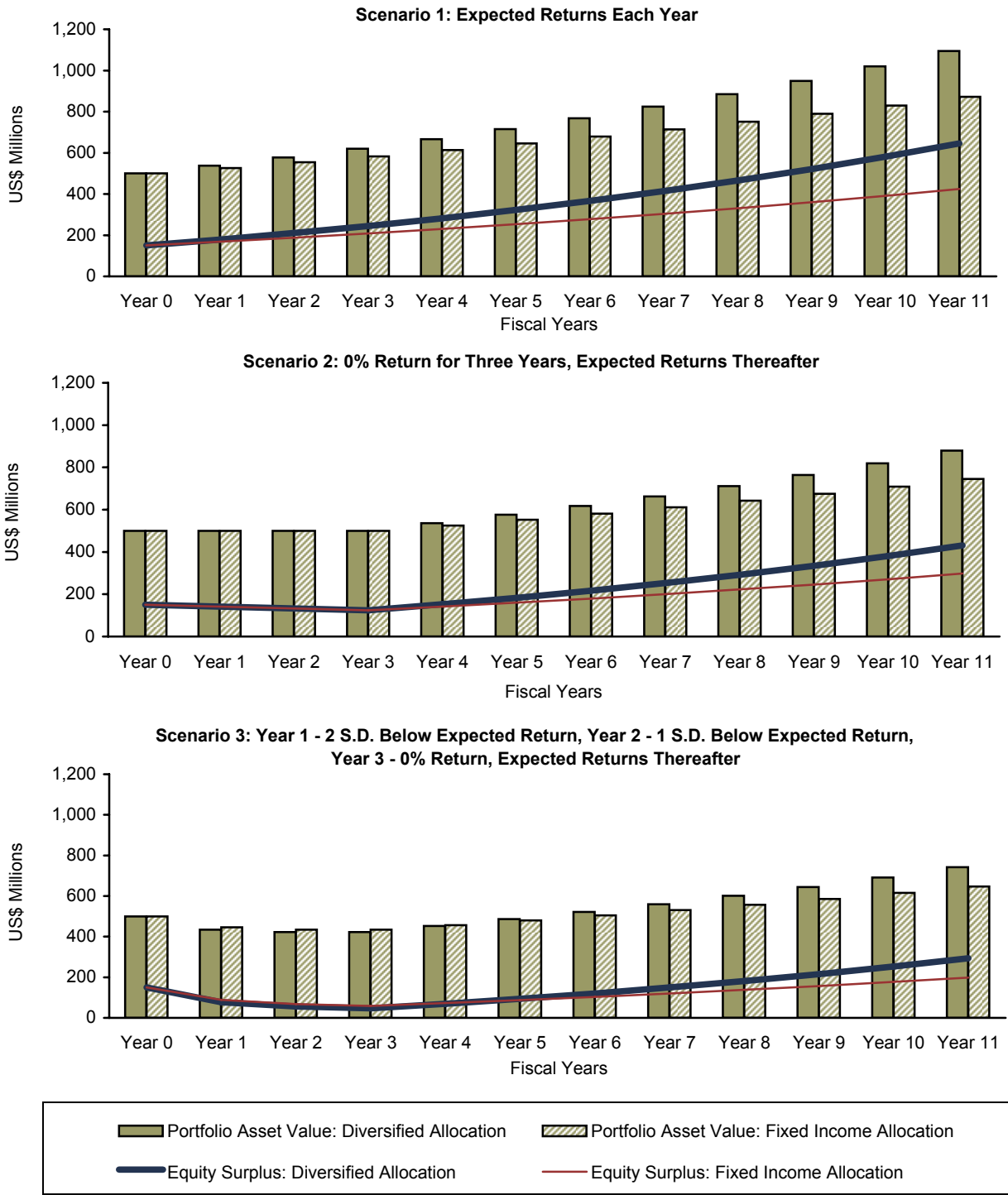
### Other Assumptions

<b>Other</b>	<b>Rate</b>		<b>Growth Rate</b>
Inflation	2.0%	Minimum Cash Held (\$mm)	100
T-Bill Return Equals Nominal Cash Return	3.0%		5%

**Exhibit 5**

**Asset Allocation: 100% Fixed Income Portfolio Versus Diversified Portfolio**

\$150 Million Equity Surplus and No Dividend



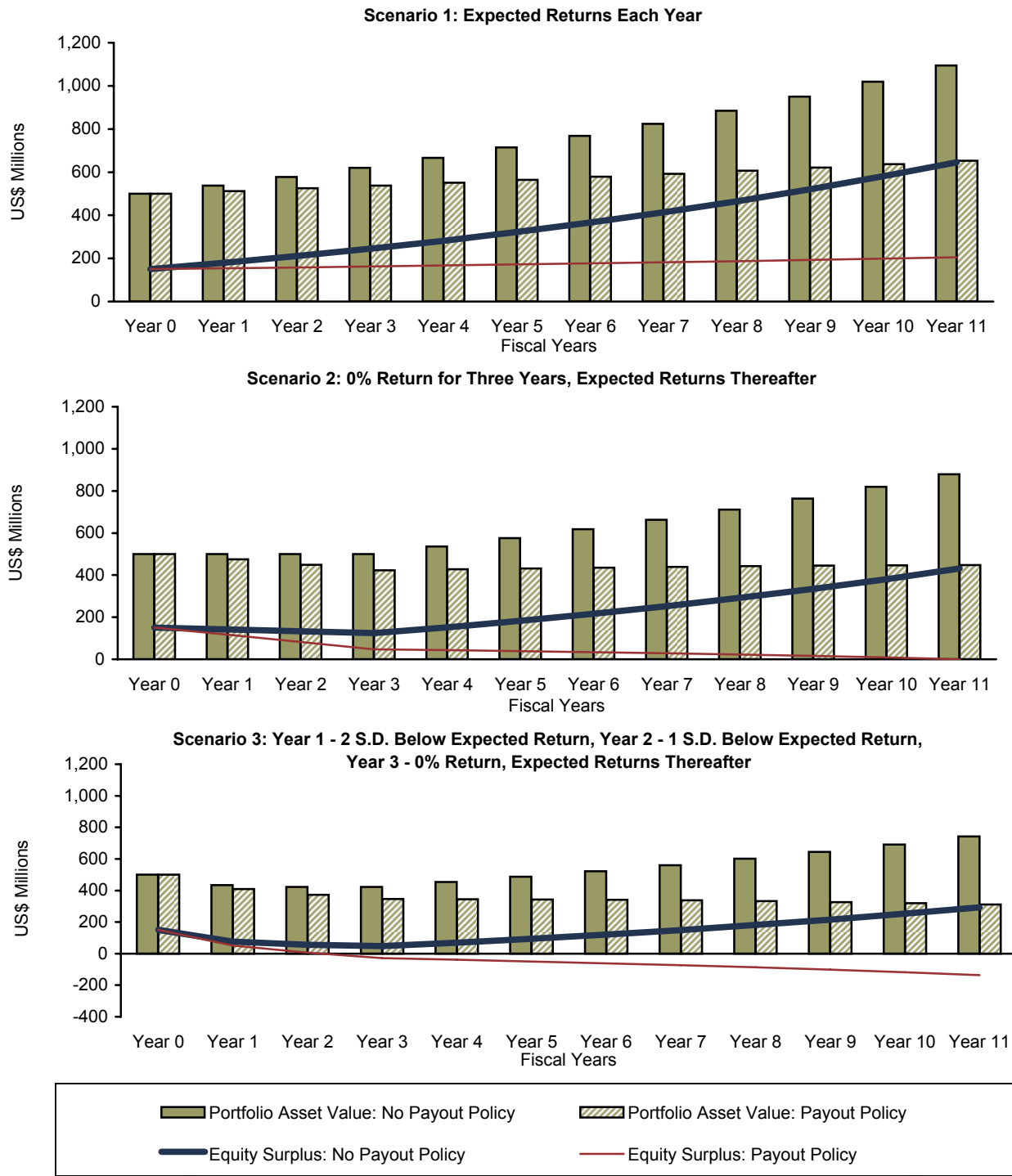
Source: Cambridge Associates calculations using internal bank model.

Notes: See Exhibit 4 for model assumptions. Diversified portfolio invested 25% in fixed income (50% U.S. government bonds, 50% investment-grade credit), and 75% in endowment units (represented by the average asset allocation of U.S. colleges and universities as of December 31, 2010). Asset values exclude cash as the initial allocation of \$100 million to cash is assumed to grow at a constant rate of 5% in all scenarios. S.D. represents standard deviation, as calculated by Cambridge Associates.

**Exhibit 6**

**Dividend Payment: None Versus \$25 Million\***

Diversified Portfolio and \$150 Million Equity Surplus



Source: Cambridge Associates calculations using internal bank model.

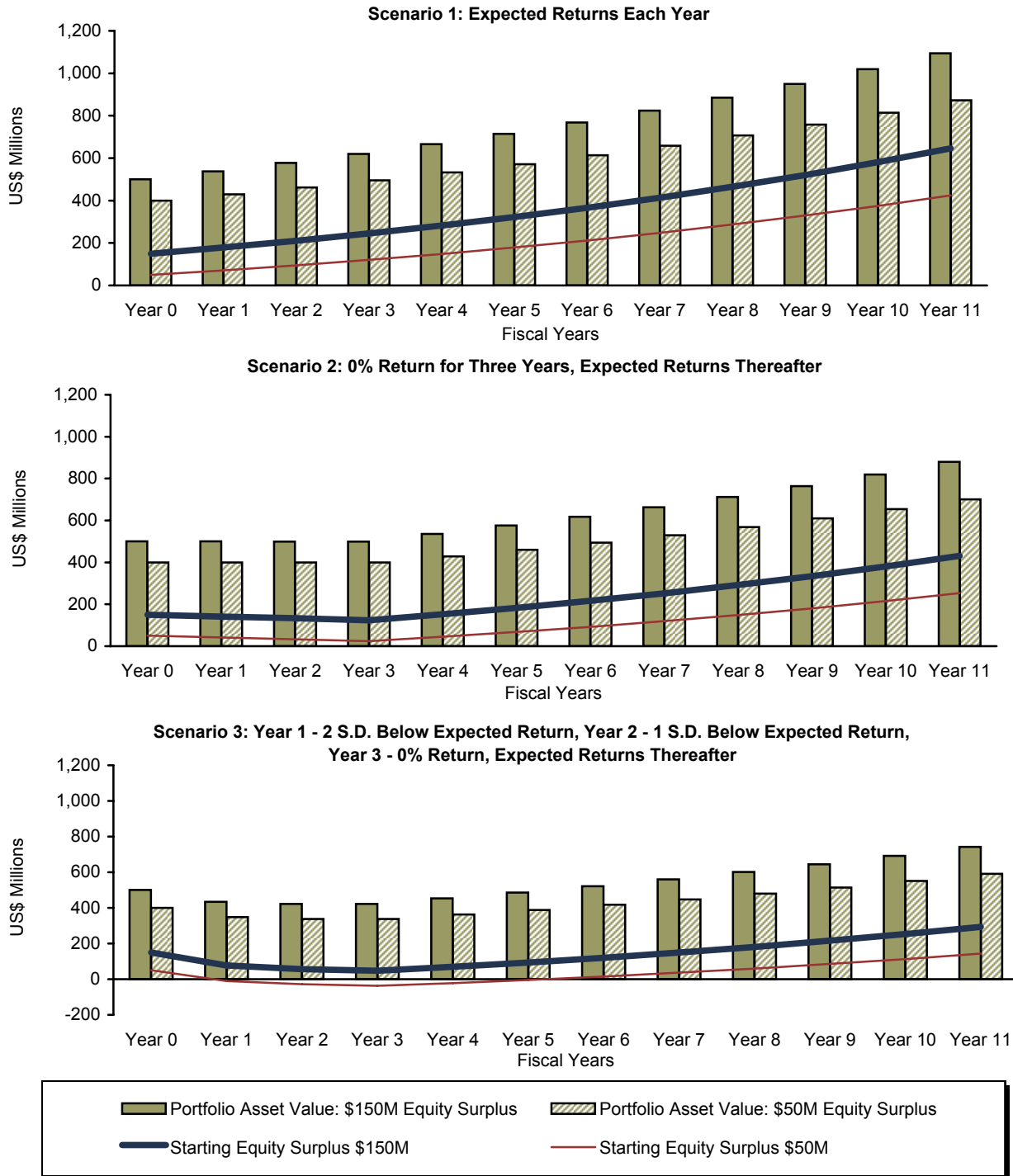
Notes: See Exhibit 4 for model assumptions. Diversified portfolio invested 25% in fixed income (50% U.S. government bonds, 50% investment-grade credit), and 75% in endowment units (represented by the average asset allocation of U.S. colleges and universities as of December 31, 2010). Asset values exclude cash as the initial allocation of \$100 million to cash is assumed to grow at a constant rate of 5% in all scenarios. S.D. represents standard deviation, as calculated by Cambridge Associates.

\* Grown annually by inflation.

**Exhibit 7**

**Equity Surplus: \$150 Million Versus \$50 Million\***

Diversified Portfolio and No Dividend



Source: Cambridge Associates calculations using internal bank model.

Notes: See Exhibit 4 for model assumptions. Diversified portfolio invested 25% in fixed income (50% U.S. government bonds, 50% investment-grade credit), and 75% in endowment units (represented by the average asset allocation of U.S. colleges and universities as of December 31, 2010). Asset values exclude cash as the initial allocation of \$100 million to cash is assumed to grow at a constant rate of 5% in all scenarios. S.D. represents standard deviation, as calculated by Cambridge Associates.

\* Relative to the bank with \$150 million equity surplus, the bank with \$50 million surplus has \$100 million less investments (total starting assets of \$400 million versus \$500 million).

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# APPENDIX EXHIBITS

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## Appendix Exhibit 1 Internal Bank Model Assumptions

This exhibit shows the assumptions used to produce the financial statements that follow. These assumptions are identical to those used in the report, except that a \$25 million dividend is assumed.

### Balance Sheet Assumptions

<b>Assets</b>	<b>Initial Balance (\$mm)</b>	<b>Expected Nominal Return</b>	<b>Expected Standard Deviation</b>	<b>Asset Allocation ex Cash</b>
<i>Investments</i>				
Cash	100.0	3.0%	2.0%	N/A
U.S. Fixed Income	125.0	5.3%	8.0%	25.0%
Endowment Pool	<u>375.0</u>	8.2%	11.0%	<u>75.0%</u>
Total Investments	600.0			100.0%
<i>Receivables</i>				
Student Loans	25.0	4.0%		
Capital Projects - Internal Loans	150.0	3.0 million	repaid per year	
<b>Liabilities</b>				
Deposits	475.0	3.0%		
External Debt (Face Value - Principal)	150.0	3.0 million	repaid per year	
<b>Equity Surplus</b>				
	150.0			

### Income Statement Assumptions

<b>Revenue</b>	<b>First Year (\$mm)</b>	<b>Growth Rate</b>	<b>Expected Nominal Return</b>
Capital Projects: Internal Loan Interest Income	10.5	N/A	7.0%
Student Loans Interest Income	1.4	N/A	5.5%
<b>Expenses</b>			
Operating Budget Payout (Dividend)	25.0	Inflation	
External Debt Interest Expense	9.0	N/A	6%
Interest Paid on Deposits	14.3	N/A	91-Day T-Bills

### Other Assumptions

<b>Other</b>	<b>Rate</b>	<b>Growth Rate</b>
Inflation	2.0%	Minimum Cash Held (\$mm) 100 5%
T-Bill Return Equals Nominal Cash Return	3.0%	



## Appendix Exhibit 2 Internal Bank Model: Balance Sheet (\$mm)

### Scenario 1 - Expected

	<u>Year 0</u>	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>	<u>Year 6</u>	<u>Year 7</u>	<u>Year 8</u>	<u>Year 9</u>	<u>Year 10</u>	<u>Year 11</u>
<b>Assets</b>												
<i>Investments</i>												
Cash	\$100.0	\$105.0	\$110.3	\$115.8	\$121.6	\$127.6	\$134.0	\$140.7	\$147.7	\$155.1	\$162.9	\$171.0
U.S. Fixed Income	\$125.0	\$134.3	\$144.3	\$155.0	\$166.5	\$178.7	\$191.9	\$206.0	\$221.2	\$237.4	\$254.8	\$273.5
Endowment Pool	\$375.0	\$402.9	\$432.9	\$465.0	\$499.4	\$536.2	\$575.7	\$618.1	\$663.6	\$712.3	\$764.5	\$820.5
Subtotal Investments	\$600.0	\$642.3	\$687.4	\$735.7	\$787.4	\$842.6	\$901.7	\$964.9	\$1,032.5	\$1,104.8	\$1,182.2	\$1,265.1
<i>Receivables</i>												
Student Loans	\$25.0	\$26.0	\$27.0	\$28.1	\$29.2	\$30.4	\$31.6	\$32.9	\$34.2	\$35.6	\$37.0	\$38.5
Capital Projects - Internal Loans	\$150.0	\$147.0	\$144.0	\$141.0	\$138.0	\$135.0	\$132.0	\$129.0	\$126.0	\$123.0	\$120.0	\$117.0
Subtotal Receivables	\$175.0	\$173.0	\$171.0	\$169.1	\$167.2	\$165.4	\$163.6	\$161.9	\$160.2	\$158.6	\$157.0	\$155.5
<b>Total Assets</b>	<b>\$775.0</b>	<b>\$815.3</b>	<b>\$858.5</b>	<b>\$904.8</b>	<b>\$954.6</b>	<b>\$1,008.0</b>	<b>\$1,065.3</b>	<b>\$1,126.8</b>	<b>\$1,192.7</b>	<b>\$1,263.4</b>	<b>\$1,339.2</b>	<b>\$1,420.6</b>
<b>Liabilities</b>												
<i>Line of Credit</i>												
Deposits	\$475.0	\$489.3	\$503.9	\$519.0	\$534.6	\$550.7	\$567.2	\$584.2	\$601.7	\$619.8	\$638.4	\$657.5
External Debt (Face Value - Principal)	\$150.0	\$147.0	\$144.0	\$141.0	\$138.0	\$135.0	\$132.0	\$129.0	\$126.0	\$123.0	\$120.0	\$117.0
<b>Total Liabilities</b>	<b>\$625.0</b>	<b>\$636.3</b>	<b>\$647.9</b>	<b>\$660.0</b>	<b>\$672.6</b>	<b>\$685.7</b>	<b>\$699.2</b>	<b>\$713.2</b>	<b>\$727.7</b>	<b>\$742.8</b>	<b>\$758.4</b>	<b>\$774.5</b>
<b>Equity Surplus</b>	<b>\$150.0</b>	<b>\$179.0</b>	<b>\$210.5</b>	<b>\$244.8</b>	<b>\$282.0</b>	<b>\$322.4</b>	<b>\$366.1</b>	<b>\$413.6</b>	<b>\$465.0</b>	<b>\$520.6</b>	<b>\$580.9</b>	<b>\$646.0</b>
<b>Total Liabilities + Equity Surplus</b>	<b>\$775.0</b>	<b>\$815.3</b>	<b>\$858.5</b>	<b>\$904.8</b>	<b>\$954.6</b>	<b>\$1,008.0</b>	<b>\$1,065.3</b>	<b>\$1,126.8</b>	<b>\$1,192.7</b>	<b>\$1,263.4</b>	<b>\$1,339.2</b>	<b>\$1,420.6</b>
<b>Investments (%)</b>												
Cash	16.7%	16.3%	16.0%	15.7%	15.4%	15.1%	14.9%	14.6%	14.3%	14.0%	13.8%	13.5%
U.S. Fixed Income	20.8%	20.9%	21.0%	21.1%	21.1%	21.2%	21.3%	21.4%	21.4%	21.5%	21.6%	21.6%
Endowment Pool	62.5%	62.7%	63.0%	63.2%	63.4%	63.6%	63.9%	64.1%	64.3%	64.5%	64.7%	64.9%
<b>Total Investments (%)</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>
<b>Endowment Pool as a % of Investments ex Cash</b>	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%

Notes: See Appendix Exhibit 1 for model assumptions. Shows output for scenario 1, where returns are equal to the long-term expected return for each of the next 11 years.

**Appendix Exhibit 3**  
**Internal Bank Model: Income Statement**  
(\$mm)

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>	<u>Year 6</u>	<u>Year 7</u>	<u>Year 8</u>	<u>Year 9</u>	<u>Year 10</u>	<u>Year 11</u>
<b>Revenue</b>											
Investments - Total Return											
Cash	\$3.0	\$3.2	\$3.3	\$3.5	\$3.6	\$3.8	\$4.0	\$4.2	\$4.4	\$4.7	\$4.9
U.S. Fixed Income Return	\$6.6	\$7.1	\$7.6	\$8.2	\$8.8	\$9.5	\$10.2	\$10.9	\$11.7	\$12.6	\$13.5
Endowment Pool Return	\$30.8	\$33.0	\$35.5	\$38.1	\$40.9	\$44.0	\$47.2	\$50.7	\$54.4	\$58.4	\$62.7
Subtotal Investments	\$40.4	\$43.3	\$46.5	\$49.8	\$53.4	\$57.3	\$61.4	\$65.8	\$70.6	\$75.6	\$81.1
Capital Projects - Internal Loans	\$10.5	\$10.3	\$10.1	\$9.9	\$9.7	\$9.5	\$9.2	\$9.0	\$8.8	\$8.6	\$8.4
Student Loan Income	\$1.4	\$1.4	\$1.5	\$1.5	\$1.6	\$1.7	\$1.7	\$1.8	\$1.9	\$2.0	\$2.0
<b>Total Revenue</b>	<b>\$52.3</b>	<b>\$55.0</b>	<b>\$58.0</b>	<b>\$61.2</b>	<b>\$64.7</b>	<b>\$68.4</b>	<b>\$72.4</b>	<b>\$76.7</b>	<b>\$81.3</b>	<b>\$86.2</b>	<b>\$91.5</b>
<b>Expenses</b>											
Deposit Interest Expense	\$14.3	\$14.7	\$15.1	\$15.6	\$16.0	\$16.5	\$17.0	\$17.5	\$18.1	\$18.6	\$19.2
External Debt Interest Expense	\$9.0	\$8.8	\$8.6	\$8.5	\$8.3	\$8.1	\$7.9	\$7.7	\$7.6	\$7.4	\$7.2
Line of Credit Interest Expense	---	---	---	---	---	---	---	---	---	---	---
Operating Budget Payout (DIV)	---	---	---	---	---	---	---	---	---	---	---
<b>Total Expenses</b>	<b>\$23.3</b>	<b>\$23.5</b>	<b>\$23.8</b>	<b>\$24.0</b>	<b>\$24.3</b>	<b>\$24.6</b>	<b>\$24.9</b>	<b>\$25.3</b>	<b>\$25.6</b>	<b>\$26.0</b>	<b>\$26.4</b>
<b>Net Income/(Loss)</b>	<b>\$29.0</b>	<b>\$31.5</b>	<b>\$34.3</b>	<b>\$37.2</b>	<b>\$40.4</b>	<b>\$43.8</b>	<b>\$47.4</b>	<b>\$51.4</b>	<b>\$55.7</b>	<b>\$60.2</b>	<b>\$65.2</b>
<b>Interest Expense</b>	3.7%	3.7%	3.7%	3.6%	3.6%	3.6%	3.6%	3.5%	3.5%	3.5%	3.5%
<b>Investments - Total Return</b>	6.7%	6.7%	6.8%	6.8%	6.8%	6.8%	6.8%	6.8%	6.8%	6.8%	6.9%

Notes: See Appendix Exhibit 1 for model assumptions. Shows output for scenario 1, where returns are equal to the long-term expected return for each of the next 11 years.

**Appendix Exhibit 4**  
**Internal Bank Model: Cash Flow Statement**  
(\$mm)

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11
<b>Sources (Uses) of Cash</b>											
Net Income	\$29.0	\$31.5	\$34.3	\$37.2	\$40.4	\$43.8	\$47.4	\$51.4	\$55.7	\$60.2	\$65.2
<b>Change in Assets</b>											
Student Loans	(\$1.0)	(\$1.0)	(\$1.1)	(\$1.1)	(\$1.2)	(\$1.2)	(\$1.3)	(\$1.3)	(\$1.4)	(\$1.4)	(\$1.5)
Capital Projects - Internal Loan	\$3.0	\$3.0	\$3.0	\$3.0	\$3.0	\$3.0	\$3.0	\$3.0	\$3.0	\$3.0	\$3.0
Cash	(\$5.0)	(\$5.3)	(\$5.5)	(\$5.8)	(\$6.1)	(\$6.4)	(\$6.7)	(\$7.0)	(\$7.4)	(\$7.8)	(\$8.1)
<b>Subtotal - Change in Assets</b>	<b>(\$3.0)</b>	<b>(\$3.3)</b>	<b>(\$3.6)</b>	<b>(\$3.9)</b>	<b>(\$4.2)</b>	<b>(\$4.6)</b>	<b>(\$5.0)</b>	<b>(\$5.4)</b>	<b>(\$5.8)</b>	<b>(\$6.2)</b>	<b>(\$6.6)</b>
<b>Change in Liabilities</b>											
External Debt - Principal Repayment	(\$3.0)	(\$3.0)	(\$3.0)	(\$3.0)	(\$3.0)	(\$3.0)	(\$3.0)	(\$3.0)	(\$3.0)	(\$3.0)	(\$3.0)
Deposits	\$14.3	\$14.7	\$15.1	\$15.6	\$16.0	\$16.5	\$17.0	\$17.5	\$18.1	\$18.6	\$19.2
<b>Subtotal - Change in Liabilities</b>	<b>\$11.3</b>	<b>\$11.7</b>	<b>\$12.1</b>	<b>\$12.6</b>	<b>\$13.0</b>	<b>\$13.5</b>	<b>\$14.0</b>	<b>\$14.5</b>	<b>\$15.1</b>	<b>\$15.6</b>	<b>\$16.2</b>
<b>Net Cash Flow Before Investments</b>	<b>\$37.3</b>	<b>\$39.9</b>	<b>\$42.8</b>	<b>\$45.9</b>	<b>\$49.2</b>	<b>\$52.7</b>	<b>\$56.5</b>	<b>\$60.6</b>	<b>\$65.0</b>	<b>\$69.7</b>	<b>\$74.7</b>
Line of Credit	---	---	---	---	---	---	---	---	---	---	---
<b>Free Cash Flow for Investment</b>	<b>\$37.3</b>	<b>\$39.9</b>	<b>\$42.8</b>	<b>\$45.9</b>	<b>\$49.2</b>	<b>\$52.7</b>	<b>\$56.5</b>	<b>\$60.6</b>	<b>\$65.0</b>	<b>\$69.7</b>	<b>\$74.7</b>
<b>Investments</b>											
U.S. Fixed Income	(\$9.3)	(\$10.0)	(\$10.7)	(\$11.5)	(\$12.3)	(\$13.2)	(\$14.1)	(\$15.1)	(\$16.2)	(\$17.4)	(\$18.7)
Endowment Pool	(\$27.9)	(\$29.9)	(\$32.1)	(\$34.4)	(\$36.9)	(\$39.5)	(\$42.4)	(\$45.4)	(\$48.7)	(\$52.2)	(\$56.0)
<b>Subtotal - Change in Investments</b>	<b>(\$37.3)</b>	<b>(\$39.9)</b>	<b>(\$42.8)</b>	<b>(\$45.9)</b>	<b>(\$49.2)</b>	<b>(\$52.7)</b>	<b>(\$56.5)</b>	<b>(\$60.6)</b>	<b>(\$65.0)</b>	<b>(\$69.7)</b>	<b>(\$74.7)</b>
<b>Net Cash Flow</b>	<b>\$0.0</b>	<b>\$0.0</b>	<b>\$0.0</b>	<b>\$0.0</b>	<b>\$0.0</b>	<b>\$0.0</b>	<b>\$0.0</b>	<b>\$0.0</b>	<b>\$0.0</b>	<b>\$0.0</b>	<b>\$0.0</b>

Notes: See Appendix Exhibit 1 for model assumptions. Shows output for scenario 1, where returns are equal to the long-term expected return for each of the next 11 years. Negative numbers are uses of cash, positive numbers are sources of cash.