RETHINKING RISK AVERSION

Modern Asset/Liability Management

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Established vs. Emerging Practices

Established

- Capital projects should be funded with gifts or endowment, and debt should be minimized
- Any debt should be fixed rate, callable, and amortizing
- Derivatives should be avoided
- Endowment investment decisions are handled by separate managers without coordination with day-to-day treasury managers
- Operating cash should be kept in short-term instruments to ensure availability

Emerging

?

- Asset/Liability Management (ALM) Theory (JPMorgan)

  vs.
- Practice (University of Texas System/ Washington University)

The University of Texas System

- The U. T. System consists of 15 academic and health institutions with more than $27 billion of assets
- The System Administration Office of Finance, based in Austin, Texas, centrally manages $3.59 billion of debt issued through two primary programs:
  - The Revenue Financing System debt program secured by a consolidated pledge of all legally available revenues
  - The Permanent University Fund (PUF) debt program secured by distributions from the PUF endowment
- Outstanding debt has increased from $1.72 billion in 2000 to $3.59 billion in 2005
- All debt is rated Aaa/AAA by the three major credit rating agencies

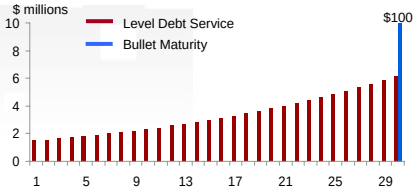
Washington University in St.Louis

- Founded in 1853, Washington University is an independent co-educational non-denominational research university.
  - Ten colleges and schools that encompass a broad area of academic programs.
  - Over 11,500 degree-seeking students (6,000 undergraduates/5,500 graduate and professional)
  - Endowment is one of the largest in the United States, ranked 13th among colleges and universities as of June 30, 2004. Endowed assets at June 30, 2005 were $4.4 billion.
- The University's Treasury Office has responsibility for managing almost $900 million in debt. The majority of this debt is tax exempt and issued through the Missouri Health and Educational Facilities Authority (MOHEFA).
- The University is rated AAA by Standard & Poor's and Aa1 by Moody's.

The traditional management perspective has focused on minimizing debt

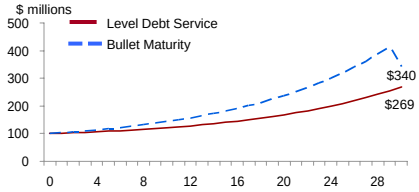
- Since debt was minimal, it was controlled
- Overall financial position is not an evaluation criterion for treasury staff
- Debt is matched against the physical assets that are financed, without consideration of the investment portfolio
- Tax counsel/bond counsel raises concerns over potential arbitrage

Principal Amortization ($100 mm level debt service vs. bullet)



Assumptions: Initial endowment = debt issued. Endowment earnings continuously reinvested. Endowment return of 8% and debt cost of 5%.

Net financial position

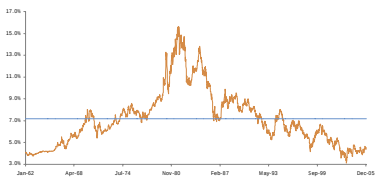


Traditionally the rate environment has mostly determined debt structure

CURRENT MARKET OPPORTUNITIES

- Issuance strategies vary according to general interest rate levels

10-year U.S. Treasury rates (%)



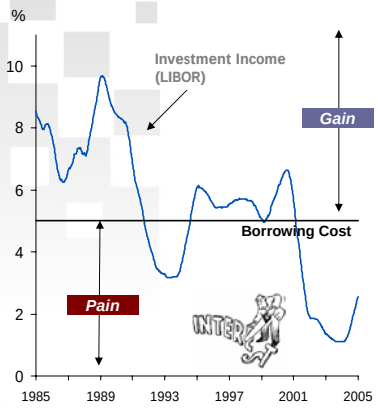
Low ← Historical Level of Rates → **High**

Issue fixed rate debt	Issue floating rate debt
Pay fixed swap rates	Receive fixed swap rates
Unwind swaps-to-floating	Unwind swaps-to-fixed
Extend debt portfolio duration	Shorten debt portfolio duration

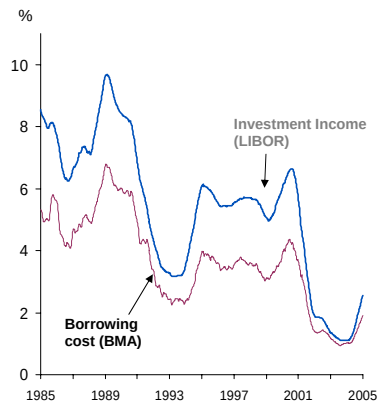
Traditional risk management can actually result in fairly risky outcomes

- When debt and investments are viewed together, long-term fixed rate debt can cost more than the yield on short-term operating cash, creating RISK
- In contrast, returns on short-term assets generally track tax-exempt floating rate debt costs

Fixed rate debt net financial exposure



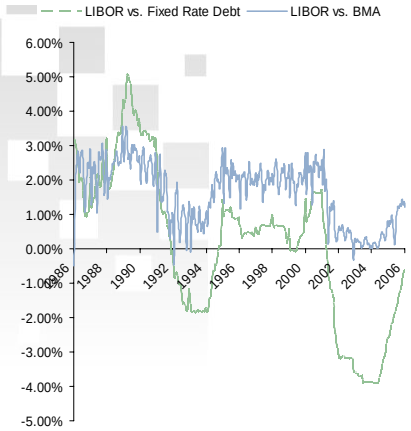
Taxable and tax-exempt floating rates



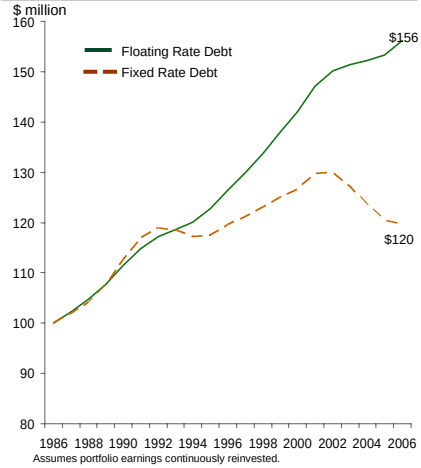
This risk can hurt an institution's long-term financial position

- Let's assume in 1986 we had a $100 million portfolio of short-term assets (returning LIBOR) and either a $100 million fixed rate (cost: 5.00%) or floating rate debt issue (cost: BMA)

Fixed vs. floating rate carry



Net financial position assuming floating rate borrowing



Assumes portfolio earnings continuously reinvested.

Introduction to the "Finance Geek's" View of ALM

- ALM is a "top down" "30,000 foot," "big picture" view
- ALM is used for strategic, long-term decisions
- ALM takes into account all investment and borrowing decisions, as well as derivative overlays on top of each of these
- Rigorously quantitative, using current state-of-the-art techniques
- Focused on net result (asset returns minus debt service)
- Assumes a godlike "decision maker" that has control over both investment and debt decisions

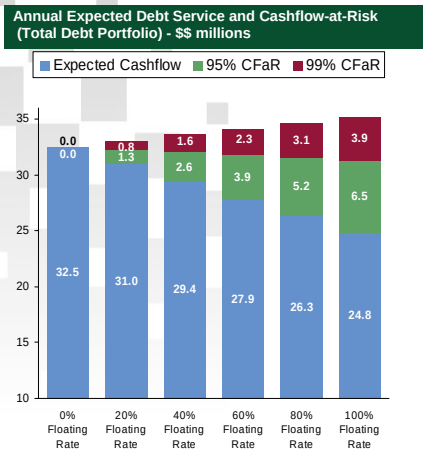
Consider the following sample balance sheet:

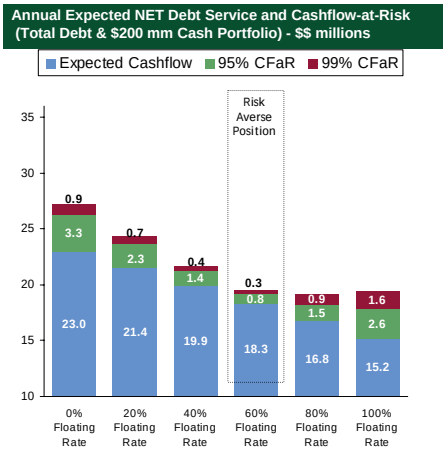
- Modern ALM modeling allows an institution to analyze the annual cash flow impact of financial instruments within the balance sheet
- An ALM model uses historical market data, volatility and correlations to calculate the expected risk of each of the following financial instruments individually and measure the net financial risk within a given balance sheet

Assets	
(Thousands of Dollars)	
Cash and cash equivalents	$ 200,000
Accounts and notes receivable, net	100,000
Contributions receivable, net	100,000
Investments	1,000,000
20% Domestic Equity	
20% International Equity	
30% Fixed Income	
10% Hedge Funds	
5% Venture Capital/Private Equity	
5% Cash	
10% Other	
Land, buildings and equipment, net	600,000
Total Assets	$ 2,000,000

Liabilities and Net Assets	
(Thousands of Dollars)	
Liabilities	
Accounts payable and accrued liabilities	$ 100,000
Deferred Income	50,000
Notes and bonds payable	500,000
Deposits and advances	50,000
Other	50,000
Total Liabilities	$ 750,000
Net Assets	
Unrestricted	$ 900,000
Temporarily restricted	100,000
Permanently restricted	250,000
Total Net Assets	$ 1,250,000
Total Liabilities and Net Assets	$ 2,000,000

Graph: Risk/return profile for sample $500 million debt portfolio alternative floating rate allocations and $200 million short-term assets





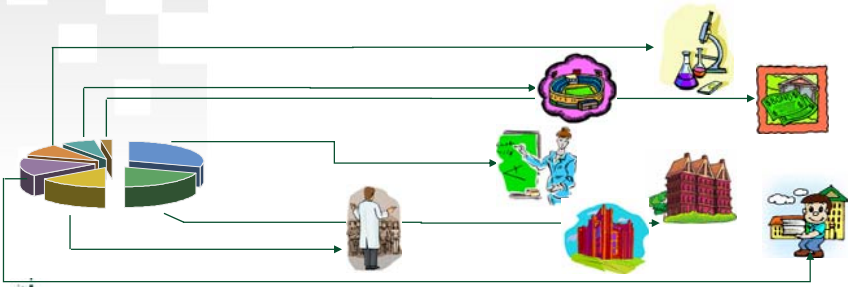
- An institution can further consider the net financial performance of all debt and assets within the balance sheet, taking into account a specific spending policy and investments goals

Emerging risk management view-context

- The financial needs of colleges and universities are changing:
  - Improved facilities are required to be competitive with other institutions
  - Institutions are more aggressive in fundraising and building their endowments
  - Spending from endowment has grown in importance as a source to support operating needs of institutions
  - Lower interest rates in recent years made debt more affordable and increased the difference between the cost of fixed rate debt and earnings on short-term investments
- Key results of these changes include:
  - Increasing use of debt to finance capital assets
  - Greater focus on endowment performance
  - Endowment is invested in more complex assets
  - “Active management” acquires bigger mind share at the institution

Who "Owns" the Endowment?

- Stakeholders include the state, if applicable, institution, donors, schools, departments and students
- Do specific endowment dollars get allocated to specific schools, department or projects?
- Allocation of endowment investments can affect debt structure, which requires interaction between endowment managers and treasury managers



Who Manages the Cash?

- Endowment cash vs. operating cash
- Managing liquid funds more efficiently to optimize net financial position requires centralization
  - Reducing control of different stakeholders over the financial decisions on assets
- Self-liquidity on floating rate bonds vs. purchased liquidity
  - Explicit connection between the asset and the liability, due to rating agency involvement
  - How should asset management and debt management sides of the institution coordinate to best manage cash position?

Central Bank

- Under a typical structure, a central bank would serve as an internal bank for the entire institution and a conduit for external financing

Debt Conduit Function

Capital Project Debt Proceeds

Debt Service on Capital Project Loans

Internal Bank Function

Investment Returns

Component Units' Short Term Funds

Working Capital Debt Proceeds

Debt Conduit Function

Capital Project Loans to Component Units

External Debt Service on Capital Project Debt

Internal Bank Function

Payment for Institution-wide Infrastructure and Initiatives

Interest to Component Units on Short Term Funds (Deposits)

External Debt Service on Working Capital Debt