San Francisco Treasury Symposium
Benchmark Your Corporate Cash Portfolio

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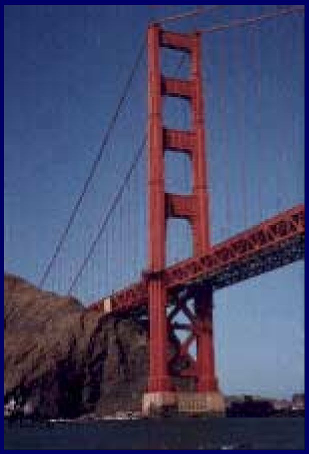
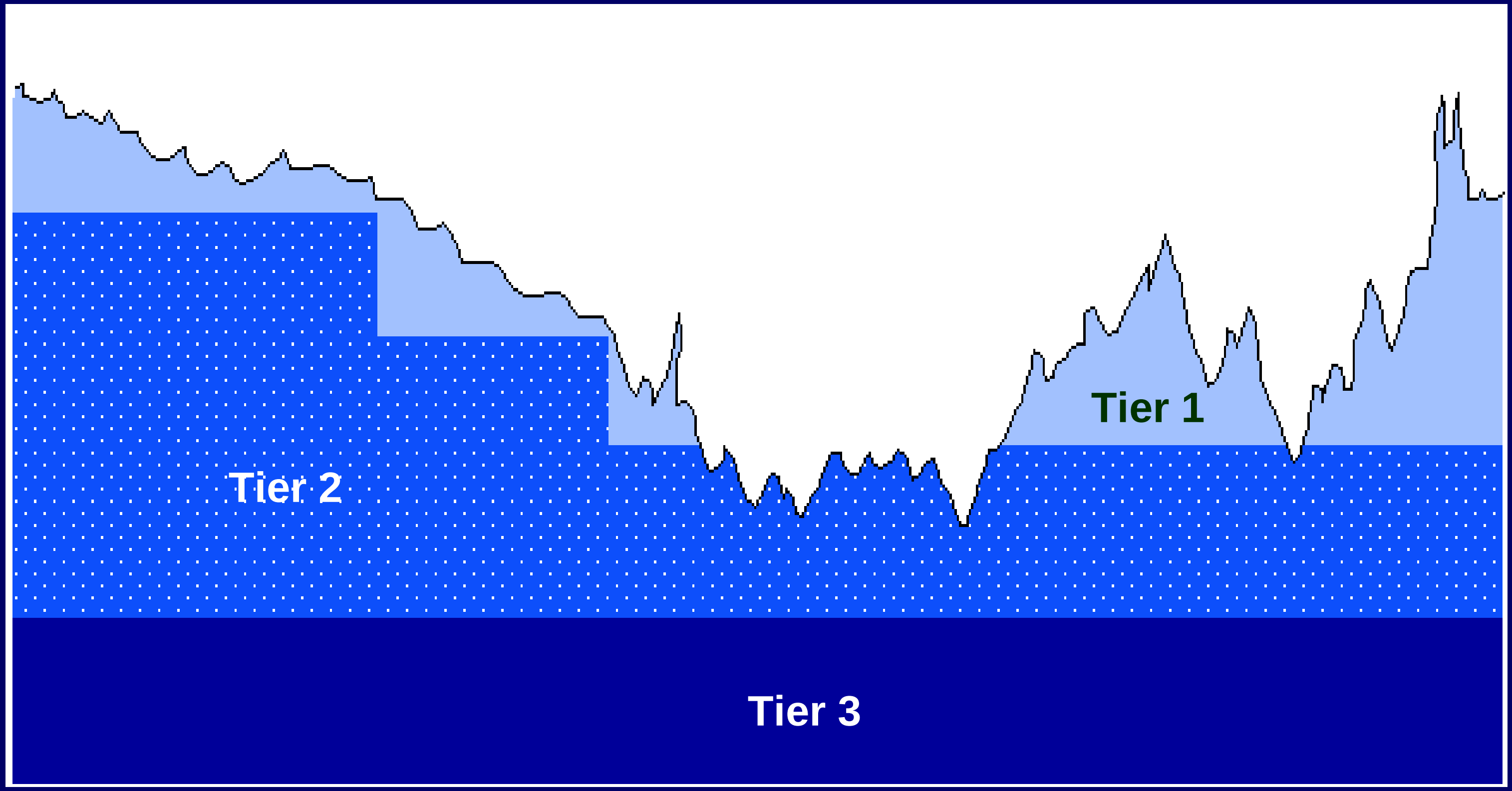
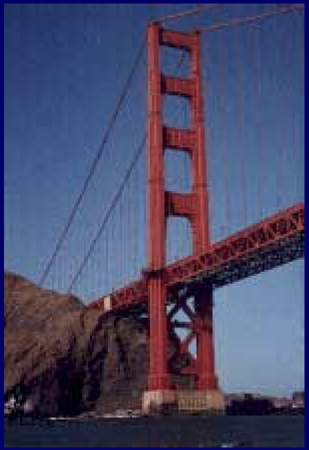


Cash Portfolios Can be Stratified by Liquidity and Investment Horizon

Each Tier is distinct and can be benchmarked.

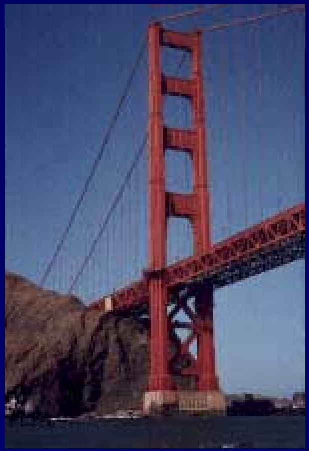




Why Benchmark Corporate Cash Portfolios?

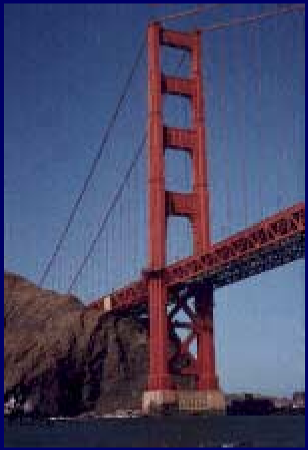
- Measure portfolio performance under similar market conditions
  - Determine opportunity cost
  - Assess level of risk taken
  - Attribute the quality of performance to
    - Yield curve positioning
    - Sector selection
    - Credit decisions

- Model portfolios
  - Benchmarks can be used to create simulated portfolios
  - Evaluate risk/return of different securities
  - Credit quality
  - Duration/maturities



Short-Term Benchmarks

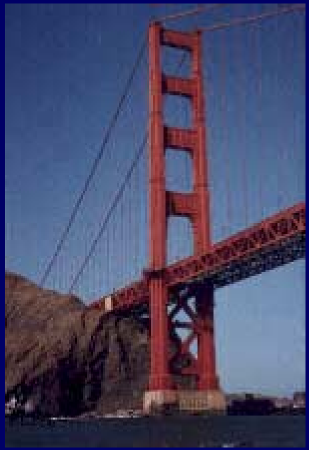
- Taxable Fixed Income
  - iMoney Net
  - 6 month LIBID
  - Merrill Lynch 0-1 Year Treas.
  - Merrill Lynch 1 Year LIBOR
  - Merrill Lynch 1-3 Yr. Govt/Corp.
- Tax-Advantaged Fixed Income
  - PSA Muni Index
  - Lehman Bros. 1 Year Muni Index
  - Bond Buyer AA GO
  - Merrill Lynch 0-3 Yr. Muni Index



Performance Measurement

Compare Performance TROR to Benchmark TROR

- Total rate of return
  - Time-weighted
  - Not yield but return
- After-tax
  - Use AIMR-PPS
  - Tax adjust either price return or coupon return
- Actual monthly returns
  - Geometrically link monthly returns
  - Different methods of calculation
  - Trailing 1, 3, 6, 12 months
  - Year-to-Date and Inception-to-Date



Criteria for Selecting Benchmark

- Viable alternative as a passive strategy
  - Neutral position
  - Without fees or transaction costs
- Consistently calculated and obtained from third party
- Reflect liquidity needs and risk tolerance
- Represent similar duration and market sectors as portfolio
- Should have similar credit quality
- Similar eligible instruments

Selecting a Benchmark

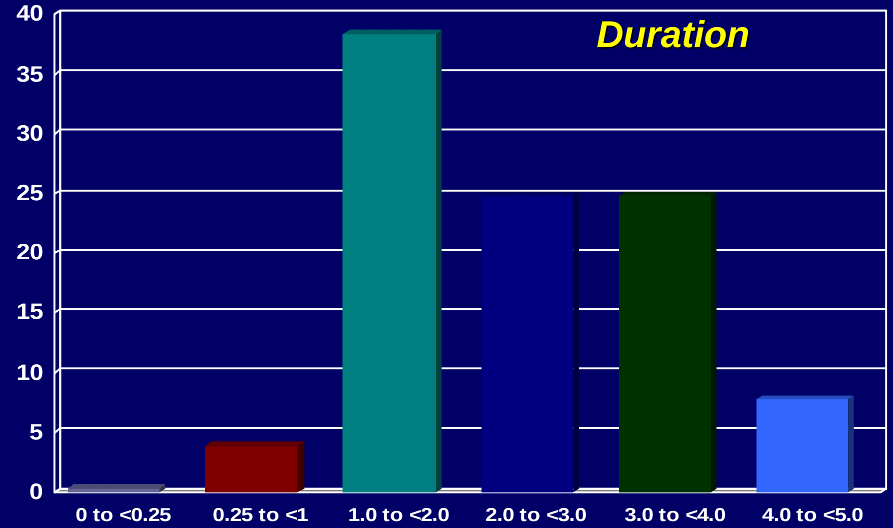
- Back test data over market cycle
  - Risk/Return profile
  - Measure volatility of index returns
  - Range of changes in duration
  - Number and size of negative quarters
- Customized or blended
  - Specify components and weightings

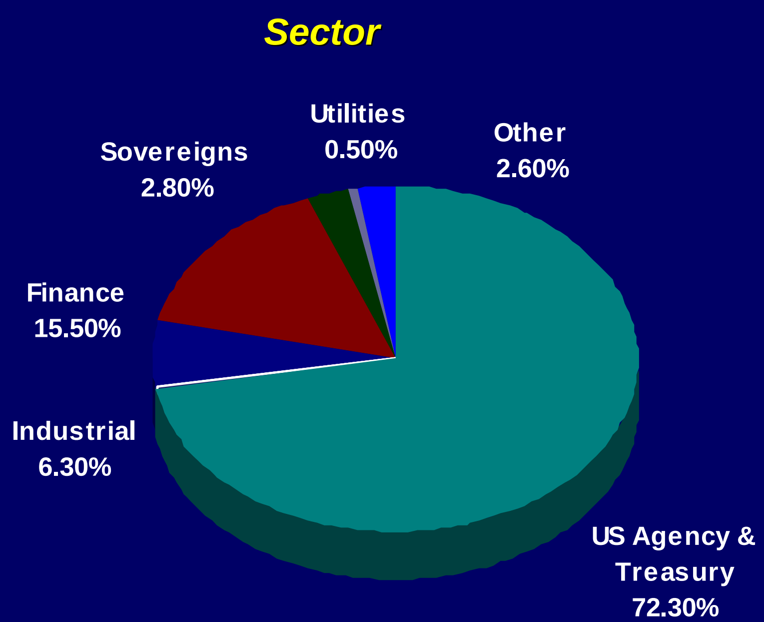
Custom-Designed Benchmarks

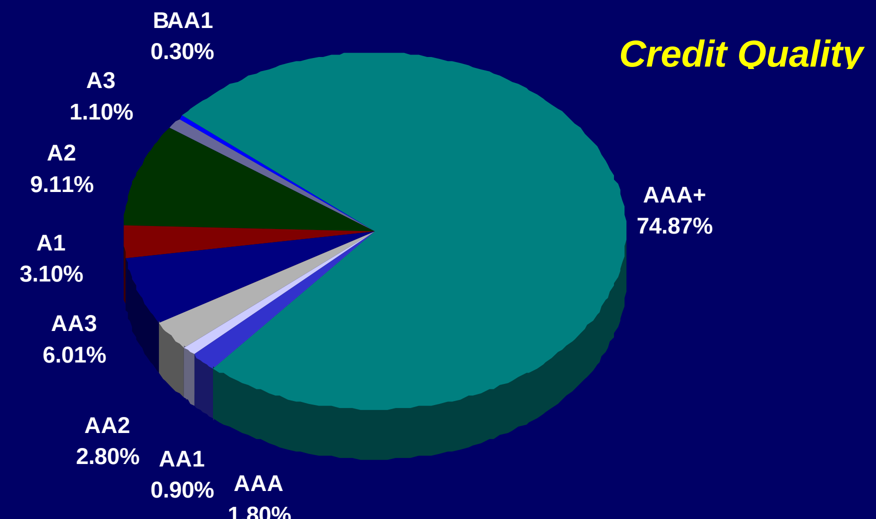
- Specialized way to measure investment manager
  - Use a specific list of securities
  - Combined with multiple published indices
  - Arrive at an expected rate of return
- Drawbacks
  - Complex can be costly to track and maintain
  - Benchmark composition may drift over time
  - Composition must be reviewed annually
  - Manager may mirror the index to reduce tracking error

Benchmark Characteristics

Merrill Lynch 1-5 Govt/Corp Index







Wind River Systems, Inc.

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Sun Microsystems, Inc.
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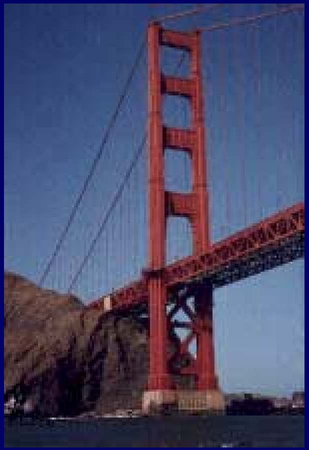
Overview Sun Microsystems, Inc.

- Total Revenue $18.25 B as of Fiscal Year End 6/30/01
- Net Income was $ 981 M
- Nasdaq stock ticker is SUNW
- Investment Portfolio: $6.2 B
- Portfolio Composition:
  - Corporate Notes & Bonds $1.7 Billion
  - Asset-backed & Mortgage-backed Securities 1.5 Billion
  - US Government/Agency Securities 1.5 Billion
  - Cash Equivalent .8 Million

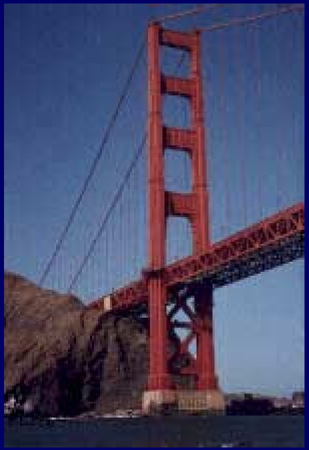
Sun Microsytems Portfolio Allocation

- Sun Microsystems has 7 portfolios allocated among:
  - Money Market Funds
  - Five Investment Managers
- Investment strategies are distinct
  - Each portfolio has custom guidelines
  - Each portfolio is a sub-set of the overall policy
- Investment Managers selected for their fixed income expertise
  - Diversify by investment style and strategy
  - Sector rotation
  - Security selection
  - Quantitative systems
  - Stress test portfolios
  - Compliance checking, pre-trade and post-trade



Sun Microsystems Treasury Curve

- Portfolio Assets diversified and distributed along yield curve
- Treasury curve - segmented by pools and average duration
  - Less than 1 year
  - Average 1 year duration
  - 1.5 year duration
  - 2.2 year duration
  - 3 year duration
- Decisions based on extensive analysis



Sun Microsystems Portfolio Duration

- Considered various portfolio durations, multiple sectors
  - 0-1 year
  - 0-2 years
  - 1-3 years
  - 1-5 years
  - 3-5 years
  - 5-7 years
- Detailed evaluation determined
  - Acceptable risk/return profile over 3, 5, 10 years
  - Acceptable levels of volatility under different subperiods
  - Concentrations
- Sun selected different durations for liquidity portfolios
  - Ranging from .75 - 2.2 years

Sun Microsystems Benchmarks

- Process taken using the market benchmarks
  - Asset Allocation Study
    - Evaluate historical volatilities of returns, market price and income return
    - Returns by credit quality such as MBS 0-5 years AAA-rated
    - Duration risk
    - Sector risk/returns, scatter diagrams
  - Use benchmarks for ongoing performance tracking
    - Decompose returns for tracking
    - Performance attribution
    - Tracking error
    - Sector weights vs. benchmark

Sun Microsystems Portfolio Allocation

- Balance sheet assets allocated by
  - Domestic portfolios and offshore portfolios
  - Unique objectives and goals
  - Liquidity needs differ based on cash flows
  - Different investment horizons
  - Individualized guidelines
  - Separate portfolios with distinct, custom benchmarks

Sun Microsystems
Ongoing Monitoring

- Use benchmarks to evaluate manager performance
  - Measure monthly, quarterly, trailing 12 month, inception to date performance
  - Volatility measured by duration
  - Credit quality drift
  - Sector allocation
  - Convexity for MBS
- Review monthly and formally on quarterly basis
  - Quarterly consolidated review with third party consultant
  - Joint quarterly manager and consultant updates
- Internal review of portfolios posted on Intranet for Sun Treasury

Sun Microsystems Conclusion

- Benchmarks are valuable tools
- Use benchmarks extensively
  - Simulate portfolios using historical return patterns under different market conditions
  - To construct model portfolios
  - Evaluate performance for manager selection
  - Provide ongoing monitoring of managers or portfolios
  - Identify style drift
  - Highlight potential risks in management style

Appendix

Return vs. Yield

- Yield to Maturity
  - Assumes a constant reinvestment rate (IRR)
  - Calculated by applying a discount rate to each cash flow of a bond, market value is sum of the present value of all cash flows
  - Assumes a buy and hold strategy
  - Assumes all coupons are reinvested at the same rate of interest
  - If interest rate rise during life of security, reinvestment rate rises and return is higher
  - If interest rates fall during life of security, reinvestment rate declines and return is lower

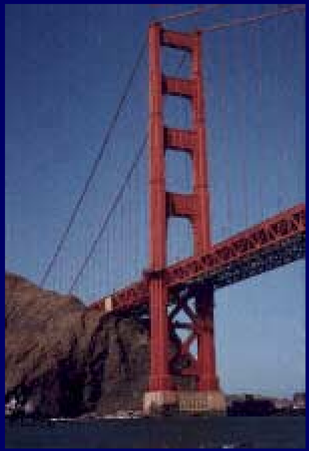
Return vs. Yield

- Yield to Call
  - Assumes a constant reinvestment rate (IRR)
  - Calculated to the call date and call price by applying a discount rate to each cash flow of a bond, market value is sum of the present value of all cash flow
  - Used to compare securities upon purchase
  - Always use Yield to Worst: lowest of YTC, YTM, YAL
  - Assumes a buy and hold strategy
  - Over life of bond it may trade on YTC or YTM depending on level of interest rates and if at premium to call price

Return vs. Yield

- Current Yield
  - Coupon interest rated divided by its market value or price
  - Ignores impact of premiums and amortization over time
  - Often used to project interest income
  - Overstates yield when market value drops (unrealized losses)
  - Understates yield when market value rises (unrealized gains)
  - Overstates high coupon, premium securities

- Book Yield
  - Yield to maturity using original purchase price
  - Often used to project interest income
  - Book yield can fluctuate sharply when securities are traded

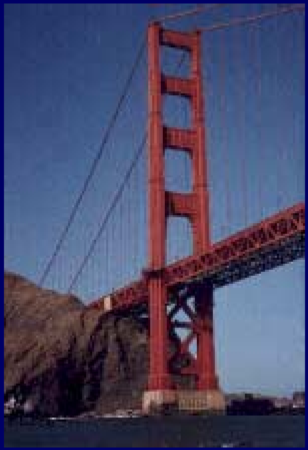


Return vs. Yield

- Total Rate of Return
  - Dollars in and dollars out analysis
  - Captures all of the changes in the value of an investment over time
  - [Ending Market Value(adjusted by wtd. Inflows and outflows)] - [Beginning Market Value] + [Interest and dividends earned] + [Accrued interest and dividends] / Beginning Market Value

$$\frac{(\text{Adjusted EMV-BMV}) + (\text{I}) + (\text{AI})}{\text{BMV}}$$

  - Monthly returns are linked and not annualized because it overstates capital gains/losses



Maturity or Duration Risk and Volatility Measure