The Capital Advisor presents IV:
A Corporate Treasurer's Guide to Investment Challenges

PERFORMANCE MEASUREMENT

Benchmark Selection for Cash Portfolios

Corporate treasury managers are frequently confronted with the task of picking the right benchmarks for their cash portfolios. Unlike stocks and long bonds, a market-based index is often too long or too risky for cash investments. Some treasurers resort to comparing "yield" earned on investments on the assumption that it is the only relevant factor in a "buy-and-hold" strategy. We want to offer our take on choosing appropriate benchmarks for corporate cash portfolios.

The Need for Benchmarking

Some argue that, if a cash investor's main objective is to maximize yield, having a benchmark is irrelevant. Within reasonable risk parameters, the higher the yield, the better. Why, then, is there a need for benchmarking?

A benchmark is the yardstick to direct an investment strategy and to measure the success of this strategy. Its usefulness lies in its representation of a "neutral" position for the investor with matched investment horizon, risk tolerance, liquidity needs and return objectives with its investment policy. In addition to being a measurement of manager performance, the benchmark is frequently used to simulate interest rate scenarios and to analyze trading and opportunity costs. Even though a perfect benchmark may not exist for a given cash portfolio, adopting one provides a good starting point for the cash manager to understand return attributions.

Golden Rules of A Good Benchmark

An appropriate benchmark, according to the securities industry trade group CFA Institute, is a recognized published index, a tailored composite of assets or indexes, or a peer group of similar funds or portfolios. Good benchmarks generally share the following common characteristics:

- They are objective and investible
- They are representative of the asset classes
- They represent comparable risk levels to a policy mandate
- They are developed from publicly available information

Common Types of Cash Benchmarks

Peer Group Averages: Also known as the "horserace" method, this is a commonly used method of measuring returns against that of a large universe of mutual funds with similar investment objectives and styles. For cash portfolios, the *Lipper Institutional Money Market Fund Average* provides average performance of all eligible institutional class money funds.

The Lipper Average may be an appropriate benchmark for hold-to-maturity investors of very high quality investments with short average maturities. According to SEC rule 2a-7, money funds must have a security maturity limit of 397 days and average maturity no more than 90 days. Money funds are allowed to use the "amortized cost", or book value, method to compute returns. The investment grade requirement also makes the average credit quality comparable to most buy-and-hold cash investors. Besides Lipper, the ***Money Market Report Averages*** published by ***iMoneyNet*** offer a similar peer group benchmark for money market accounts.

A major drawback of the peer group method is the big maturity gap between the

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money market universe, which may be 45 days long, and the short-duration bond universe, which can be as long as two years. Peer group comparison is also a net-of-fees return that makes it difficult to discern whether a strong number is the result of a manager's investment skills or due to a lower fee structure.

Treasury Bills Indices: Comparing the returns of a cash portfolio against that of a comparable maturity U.S. Treasury Bill is a simple and elegant way of benchmarking cash returns. **Citigroup,** for example, has a full range of Treasury Bill indices from one month through one year. The benefit of picking a T-bill index is the simplicity and transparency of pick a Bill that matches the average maturity of a portfolio. On the other hand, using a T-bill index understates the credit risk of the portfolio and introduces mismatched yield curve exposure as one is comparing a portfolio against a single T-Bill that is replaced at the end of each month.

LIBOR Benchmarks: To account for the credit risk of a non-Treasury mandate, some cash accounts have migrated to LIBOR as short-term benchmarks. LIBOR, or London Interbank Offered Rate, is the lending rate at which banks borrow funds from each other in the London interbank market. Each day, LIBOR rates are posted for different currencies, including the Dollar, and different maturities ranging from overnight to 12 months. The average credit rating of the 16 international banks included in LIBOR would suggest an implied credit rating of low AA.

Despite the credit risk representation, we find LIBORs to be inferior to T-Bills as cash benchmarks. They violate at least two of the four rules of a good benchmark as they are not investible directly, and there is not an industry recognized index provider that produces rate of return information on them. In addition, risk premium of bonds and commercial papers, at times, may not have anything to do with LIBOR, which primarily reflects banks' appetite for risk.

Market Value Benchmarks: Unlike a portfolio that uses the amortized method to compute book value returns, accounts with securities longer than 397 days should consider adopting a market-value based, or total return, index that marks-to-market all unrealized gains and losses. Some of the commonly used short-duration market value benchmarks include the **Merrill Lynch 1 Year Treasury Note, the Merrill Lynch 1 to 3 Year Corporate & Government**, and the **Merrill Lynch 1 to 5 Year Corporate & Government** Indices. Accounts with a credit mandate excluding BBB securities can also find an index with a comparable maturity and minimum credit rating, such as the **Merrill Lynch 1-3 year A-Rated and Above** Index.

The choice for the appropriate market-value based index is contingent upon the account's interest rate risk tolerance and the willingness to realize accounting gains and losses as periodic portfolio duration extension trades are done to keep pace with the duration of the benchmark. While one may find one index provider preferable to other, the specific decisions are often based on availability that best matches an account's mandate.

Tax-advantaged Benchmarks: The municipal bond market has long been recognized as being less liquid and more fragmented than the government and corporate markets. Because of this, few index-based benchmarks exist for cash portfolios. The BMA Municipal Swap Index, produced by the Bond Market Association, is widely used to track the performance of high-quality tax-exempt obligations with seven-day reset schedules. Longer maturity benchmarks include the **Merrill Lynch 1 to 3 Year Municipal Index**, and the Bond Buyer AA General Obligations Index.

Some corporate accounts that are taxpayers find it simpler and more transparent to use a taxable benchmark adjusted for its assumed corporate tax rate. Aside from certain tax sensitive trading strategies, benchmark selection criteria are essentially the same as those used for non-taxpaying accounts.

Custom Benchmarks: A custom benchmark is one that combines two or more benchmarks to better represent an account's tolerance for interest rate and credit risks. For example, an account with an "enhanced cash" mandate may create a custom benchmark from the Merrill Lynch 3-month T-Bill and the 1-3 Year C/G indices in a 50/50 mix to benefit from the yield curve steepness while still maintaining an overall low duration risk. Similar adjustments can be made to credit ratings asset classes and industry sectors.

The benefit of a customized benchmark is that it may best represent a particular investment mandate. However, it is not without its drawbacks as it is more difficult to track and maintain on an ongoing basis. Also, detailed return attribution analysis is often impossible since index producers do not construct security level information for return analysis.

Other Types of Benchmarks: Among the less common benchmark methods, some cash investors use the "yield plus a risk margin" method; others may use a "benchmark portfolio". Still others use a dynamic "benchmark rule" that changes as circumstances do. Each comes with its own advantages and drawbacks.

Choosing the Right Benchmark for Your Portfolio

A good benchmark should reflect the "neutral" position for a given investment policy. For all accounts, the first step in selecting an appropriate benchmark is to determine a portfolio level tolerance for interest rate risk, as represented by its duration or average maturity, and credit risk, as represented by average credit ratings. Other factors, such as liquidity constraints and portfolio turnover restrictions, should also be considered.

For relatively short, hold-to-maturity accounts, a comparable maturity Treasury Bill index can be used in addition to a money market Peer Group Average to adjust for higher interest rate risk assumed. For portfolios containing securities longer than a year, a market index with comparable duration and credit quality is more appropriate. Sometimes two or more indices can be combined into a custom benchmark to mimic the risk characteristics of the portfolio mandate. However, be prepared to deal with higher maintenance costs and occasional benchmark drifting.

A good cash benchmark should be simple, objective, representative, and publicly available. Beware of benchmarks that are complicated, subjective, inconsistent, or proprietary. At the end of the day, a benchmark is meant to measure the success of certain portfolio objectives. It should be an important risk-adjusted, performance-enhancing tool, rather than a hindrance to the cash manager.

This article originally appeared in *the Capital Advisor,* a web-based newsletter of the investment advisor, on February 5th 2005. Go to www.capitaladvisors.com for more information.

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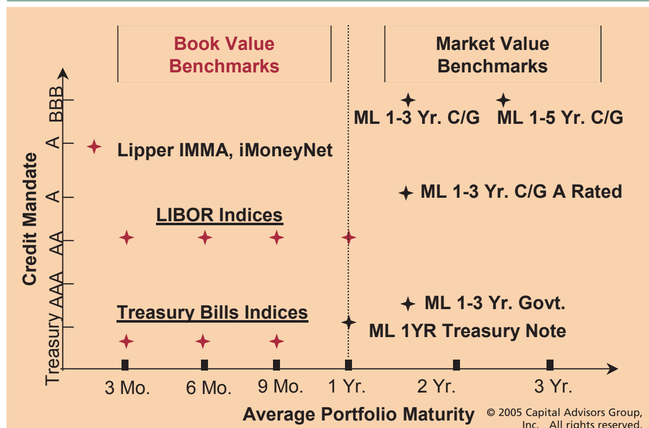
CAPITAL ADVISORS GROUP
Independent Treasury and Debt Solutions

Short-Duration Benchmark Selections

BENCHMARK MATRIX



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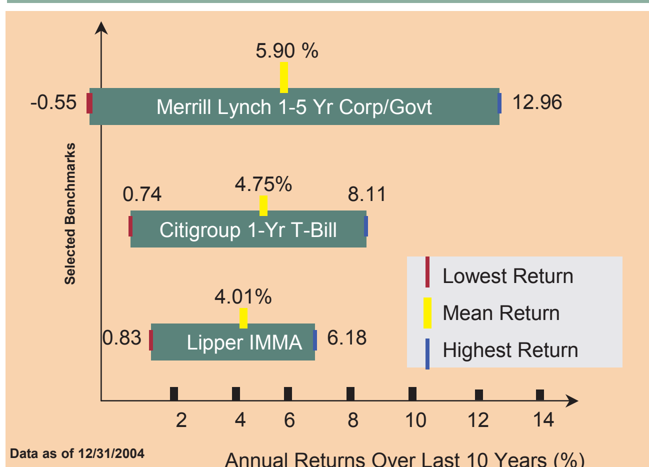
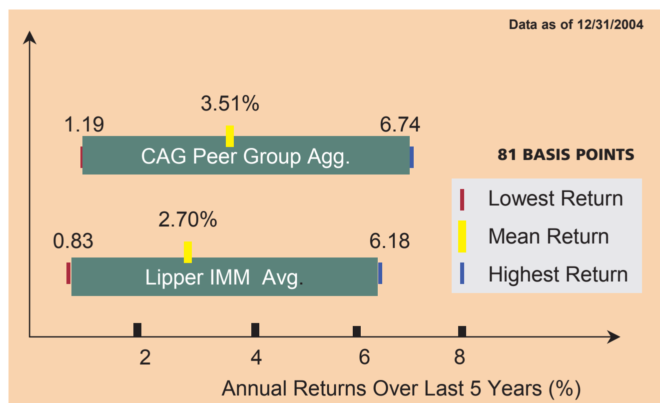


SAMPLE CAG PEER GROUP RETURNS



BENCHMARK OVERVIEW

Benchmarks and performance measurement have evolved in recent years to respond to the growing needs of clients and asset consultants in order to quantify the success of a given investment strategy. The choice of an appropriate benchmark can be a dizzying experience as there are many options available.

Benchmark selection is a collaborative process ...

The performance measurement process for short-duration assets is complicated; thus, choosing a benchmark should be a collaborative effort between the asset manager and the client to help eliminate misinterpretations. Because there is no perfect benchmark, tradeoffs are inherent in the selection process.

An appropriate benchmark may be ....

- ✓ A recognized published market index
- ✓ A tailored composite of assets or indices
- ✓ A peer group or "universe" of similar portfolios.

A good benchmark is ...

- ✓ objective and investable
- ✓ representative of the asset class or mandate (e.g. similar credit quality and duration)
- ✓ developed from publicly available information
- ✓ acceptable by the manager as the neutral position
- ✓ consistent with the underlying investor status.

An investor should be very aware of the types of standard benchmarks that are available, and understand the risk/return profile of each measure.

It's important to analyze benchmark risk ...

From a universe of available benchmarks, a risk/return study, which is a historical analysis of index data over various market cycles, can be constructed. The risk/return study measures:

- ✓ The volatility of returns
- ✓ Ranges of sector and duration buckets over time
- ✓ Weightings of individual securities and industry components
- ✓ The size of negative returns in a bad year.

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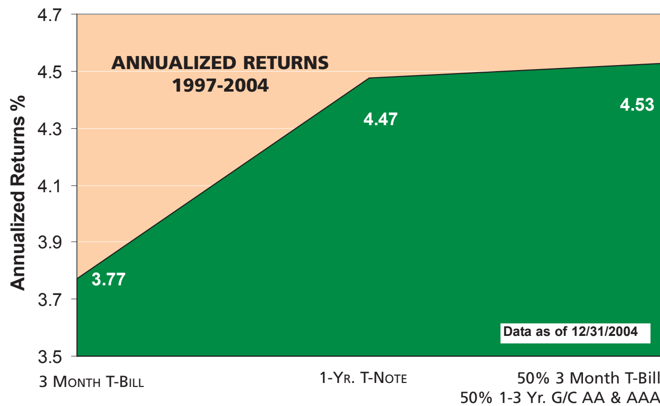
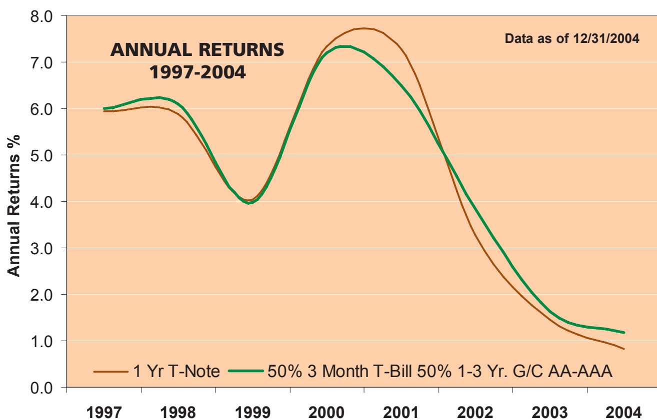
Short-Duration Benchmark Selections

BLENDED BENCHMARK ANALYSIS





The blended benchmark assumes a static weighting of 50% each of the Merrill Lynch 3 month US T-Bill Index and the Merrill Lynch AA-AAA rated 1-3 Yr Corporate & Government Index. Returns are compared against the Merrill Lynch 1 Year Treasury Note Index.

CONCLUSIONS

✓ Choosing a benchmark facilitates the understanding of the risk/reward trade-offs of various treasury investment options.

✓ Because benchmarks can be back-tested, a particular investment manager's strategy can be laid over the benchmark to identify variances of both returns and risk.

✓ This strategy can be applied regardless of whether the benchmark is adjusted book value or market value based and can be done on a stand-alone basis or a customized blended basis.

COMMON BENCHMARKS

Adjusted Book Value Bias:
- One Month LIBOR
- Citigroup 3 month T-Bill
- Citigroup 6 month T-Bill
- Lipper Institutional Money Market Average

Market Value Bias:
- Merrill Lynch 1 Year Treasury Note
- Merrill Lynch 1-3 Year Govt/Corp.
- Merrill Lynch 1-5 Year Govt/Corp.

Tax-Advantaged Bias:
- BMA Municipal Swap Index
- Lehman Brothers 1 Year Municipal Index
- Merrill Lynch 1-3 Year Municipal Index

ABOUT CAPITAL ADVISORS

Capital Advisors Group, Inc. (CAG) is a registered investment advisor (RIA) with the SEC that offers short-term investment solutions for corporate cash reserves.

Since our founding in 1991, we have maintained an independent approach which fosters original thinking and a results-oriented investment strategy. Our uniquely-tailored Custom Liquidity Accounts™ allow clients the opportunity to benefit from higher returns on investments that have, on average, slightly longer maturities than money market funds.

Through our deep experience with venture backed companies, CAG has accumulated a valuable "peer level" knowledge base that provides references for investment policy formulation and portfolio construction. We believe this peer knowledge base, including investment guideline distribution and performance, is unique in the market.

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Performance shown is the time-weighted, adjusted book-value performance for each quarter (market value shown in data section), taking into account the re-investment of dividends and earnings. Capital Advisors Group believes that book value return is the most relevant performance measure for buy-and-hold portfolios. Book value return is calculated using the amount of interest that has been earned +/- the principal that has been amortized throughout the given period. Accounts have been included in composites on a dollar-weighted basis. Quarterly returns are presented on an annualized basis. Maturity bucket performance represents the average quarterly balance for all cash management accounts within the specified average maturity buckets. Capital Advisors Group's 5-Year performance is based on the arithmetic mean of the corresponding quarters with no other adjustments. Historical performance available by calling 617-630-8100.

The Lipper Institutional Money Market Fund Average is a widely recognized and accepted benchmark for money market fund performance. The Index is a measure of the total return market value performance average of funds tracked by Lipper Analytical Services, Inc. that invest in high quality financial instruments with dollar-weighted maturities of less than 90 days. While this is not a comparison of like products, we believe it to be a fair comparison to our investment discipline. The Lipper institutional Money Market Fund Average is comprised of investment companies registered under the Investment Company Act of 1940 ("1940 Act") and, therefore, is subject to certain investment restrictions, limitations and diversification requirements imposed by the 1940 Act, including Rule 2a-7, and the Internal Revenue Code that are not applicable to accounts managed by CAG. If CAG had been subject to the same requirements, its performance may have been adversely affected.

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