

The Internal Bank: The next opportunity in operating and non-endowment assets

An entity that manages liquidity, transactions and borrowings while integrating all three to maximize net interest margin is, in effect, a bank.

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This paper, the first in a series on the internal bank concept, focuses on enhanced management of limited-term assets and effective analytic tools to monitor these portfolios. Subsequent papers will address the liability side of the balance sheet and resource planning.

By integrating the components of its treasury operation into a single cohesive structure, a nonprofit complements the management of its long-term assets as it seeks -- consistent with sound risk management practices -- to maximize the organization's net worth and support its mission.

Executive Summary

In recent years, some forward-thinking nonprofit organizations have begun to structure their treasury operation as if it were an independent service provider, or an "internal bank." This perspective represents an important transformation for nonprofit organizations and should create new opportunities for these institutions to maximize their net operating resources. While nonprofits with large operating budgets and significant cash assets stand to benefit most in absolute dollar terms from improving their liquidity portfolios, small and mid-sized nonprofits can achieve significant proportional improvements by using the same principles. This study focuses specifically on data from institutions of higher education; however, in our view the opportunity is not limited to universities.

The internal bank approach is far from being universally practiced. Liquidity balances remain at historic highs, particularly among educational institutions, with the average university maintaining 67 percent of its operating budget (as measured by total operating expense) in cash and cash equivalents. Although total cash needed in the higher education sector is conservatively estimated at about \$60 billion, educational institutions' treasuries are in fact carrying more than \$268 billion in cash, even when measured at the low point of the fiscal year's cash cycle.

Defining the “internal bank”

Treasury operations act as a commercial bank does – managing a deposit base, investing significant liquidity assets, utilizing sophisticated liability management tools, and serving as an efficient transaction processor – all with the goal of creating a surplus in the form of additional financial resources for the institution.

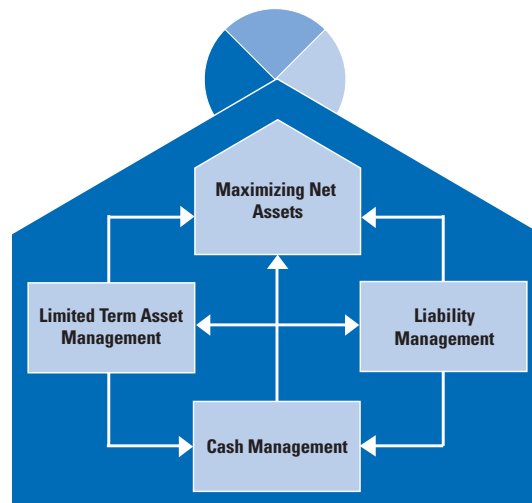
Commonfund believes that nonprofits have a significant opportunity to enhance their treasury operations by managing operating and non-endowment assets using the internal bank concept. Individual components of such a structure include cash flow management, transaction management, debt management, risk management and operating asset management. Each area represents an opportunity to extract more resources for productive redeployment by the organization.

The concept of the internal bank is centered on an organization’s ability to integrate the three primary functions of treasury management:

- Limited-term asset management (the management of non-endowment investment assets)
- Liability management (both short- and long-term)
- Cash management (transaction and process management)

Integrated Treasury Operations - “An Internal Bank”

Figure 1



With these three functions coordinated, the treasury can benefit from effective asset/liability management strategies, build a reserve of net interest margins just as a bank does, and optimize the organization’s capacity to access the capital markets in the amounts needed at a reasonable price. By successfully realizing these positive net interest margins, the bank continuously adds to its net worth over time.

Overly conservative balance sheet management practices come with a high cost for higher education

Commonfund studied more than 100 educational institutions' financial statements to analyze their liquidity as measured at fiscal year-end 2005. Our research confirmed that institutions of higher education have accumulated large amounts of cash and cash equivalents and maintain very liquid, ultra-conservative balance sheets. The opportunity these institutions have before them is to redeploy their liquid assets in enhanced, risk-adjusted portfolios where they can benefit from the same types of processes, policies and investment expertise that they call upon to manage longer-term asset pools.

The high level of liquidity carried by nonprofits

Nonprofit organizations carry surprisingly high levels of liquid assets on their balance sheets. We measured the cash and cash equivalent assets on the balance sheets of more than 100 nonprofit colleges and universities as of the end of their 2005 fiscal year -- generally the low point of the year for cash balances (June 30). We then computed various cash ratios for each institution.

Cash Metrics of Public and Private School Survey Participants **Figure 2**

| | Cash to Total Assets | Cash to Payroll | Cash to Budget | Change in Cash | Cash to Debt | Cash to Endowment Assets |
|-----------------------------------|----------------------|-----------------|----------------|----------------|--------------|--------------------------|
| Mean | 20% | 240% | 67% | 82% | 151% | 131% |
| Median | 14% | 81% | 36% | 34% | 75% | 28% |
| 10th Percentile | 4% | 31% | 13% | (6%) | 19% | 5% |
| 90th Percentile | 50% | 372% | 135% | 145% | 369% | 188% |

Source: Commonfund Research, 2006

The data show that the median school at the end of FY2005 maintained 14 percent of its total assets in the form of cash – much more than might be expected. This conservative position appears to stem from the mismatching of educational institutions' revenue and expense streams throughout the fiscal year. Schools have cyclical revenue flows based on the tuition cycle, with major cash receipts generally occurring in late summer (August/September) and mid-winter (January/February). Since a large part of college and university expenses, on the other hand, are payroll and payroll-related, cash outflows for operations are relatively predictable and consistent over the course of a year. Our research also showed that payroll¹ of all institutions surveyed represented 39% of total expenses, while state universities had payroll of 38% of expenses and private institutions were slightly higher at 41% of total expenses.

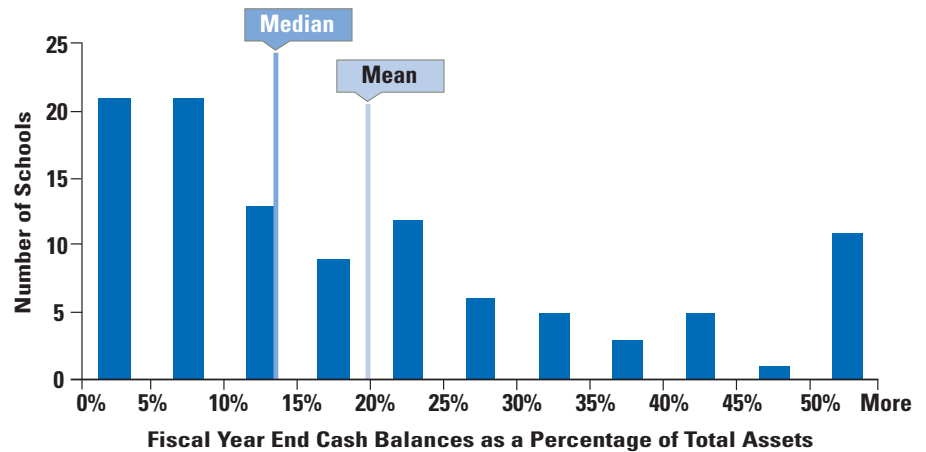
It is all the more surprising, therefore, that operating cash balances have swollen disproportionately in recent years and do not appear to be connected to these predictable cash flow cycles. Instead, they seem to have become regarded as a kind of risk buffer.

¹Commonfund research 2006 based upon "Instructional Expense" of institutions surveyed.

Fiscal Year End Cash Balances to Total Assets

Figure 3

Public & Private Schools



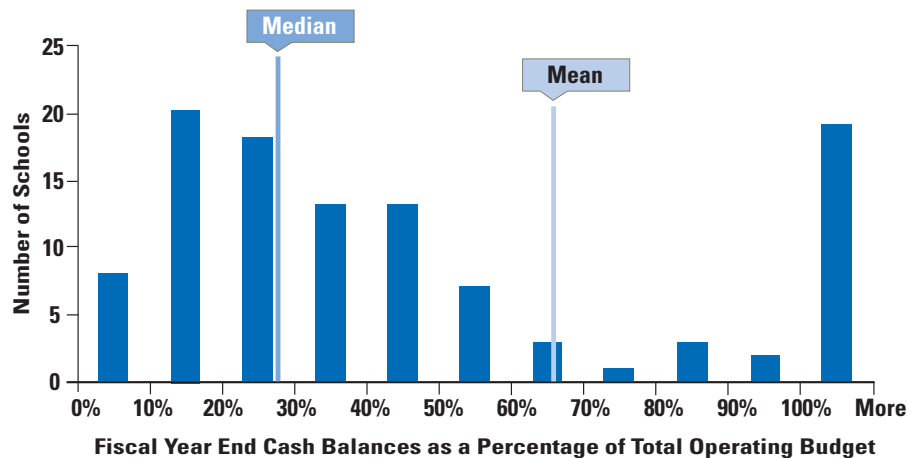
Source: Commonfund Research, 2006

Individual occurrences within our sample show an unusually wide dispersion of cash holdings. On the left tail of the distribution in Figure 3 we find institutions that maintain a limited amount of liquidity, or roughly 5 percent of total assets. On the right tail are institutions that maintain remarkable amounts of liquidity on their balance sheet – in some cases, almost 70 percent of total assets.

Fiscal Year End Cash Balances to Total Operating Budget

Figure 4

Public & Private Schools



Source: Commonfund Research, 2006

There appears to be no consistent policy or benchmark to determine the optimal level of liquidity needed. Organizations appear simply to have accumulated excess liquidity over the last several years, adopting a “better safe than sorry” policy for their working capital.

This decision carries increasing consequences for the ability of these institutions to optimize the return on their short-term investment pool. In the very low interest rate environment that prevailed during 2003 and 2004 -- a period when 3-month Treasury bills returned, on average,

2.5 to 3 percent and longer maturities returned less than 4.5 percent -- the opportunity cost of maintaining large cash balances was not great. Now, however, these accumulated balances represent an opportunity to implement better limited-term asset management policies and investment practices. This opportunity is available to both public and private educational institutions, although public universities tend to maintain higher levels of cash (an average of 21 percent of total assets) than private universities (8 percent of total assets).

Cash Metrics of Public and Private School Survey Participants by Type

Figure 5

| | Cash to Total Assets | Cash to Payroll | Cash to Budget | Change in Cash | Cash to Debt | Cash to Endowment Assets |
|--|----------------------|-----------------|----------------|----------------|--------------|--------------------------|
| Private Universities (count = 64) | | | | | | |
| Mean | 18% | 299% | 76% | (379%) | 160% | 35% |
| Median | 8% | 74% | 33% | 30% | 45% | 13% |
| 10th Percentile | 3% | 21% | 10% | (29%) | 16% | 5% |
| 90th Percentile | 57% | 525% | 169% | 176% | 427% | 85% |
| Public Universities (count = 43) | | | | | | |
| Mean | 23% | 155% | 53% | 41% | 138% | 112% |
| Median | 21% | 86% | 39% | 35% | 106% | 93% |
| 10th Percentile | 9% | 43% | 19% | 10% | 44% | 16% |
| 90th Percentile | 41% | 263% | 82% | 74% | 241% | 230% |

Source: Commonfund Research, 2006

Other data sources support our proposition that, viewed as a whole, the higher education community has become extremely liquid. The latest Department of Education / Integrated Postsecondary Education Data System information (based on FY2004 surveys) estimates that the total of all operating budgets in higher education is over \$400 billion. If that figure is applied to the mean “cash to budget ratio” shown in Figure 2, we may infer that colleges and universities hold more than \$268 billion of cash at the low point of the annual cycle.

What might be a reasonable estimate of required cash balances for an educational institution? If all institutions were to maintain three months of payroll in cash, it would amount to less than \$40 billion. A conservative estimate of endowment cash, or 5 percent of FY2005 endowment asset balances of \$400 billion, would add \$20 billion to our cash estimate – or no more than a total of \$60 billion in cash needed on educational institutions’ balance sheets at any one time. We can conclude that even at fiscal year-end there is a tremendous gap between what is needed – \$60 billion – and what is estimated to be on balance sheets – \$268 billion.

Comparing education to the corporate sector

Payroll turnover is an indicator of how well an organization manages cash balances while having enough liquidity to ensure that its most important expense is always met. Outside of higher education, corporations strive to turn payroll over as much as 12 times a year. The campuses studied showed that cash balances at their annual fiscal year-end low point (June 30) still had a median cash-to-payroll ratio of 81 percent (Figure 2). This means that educational institutions are turning payroll over less than twice a year, a much less efficient use of funds than in the for-profit world.

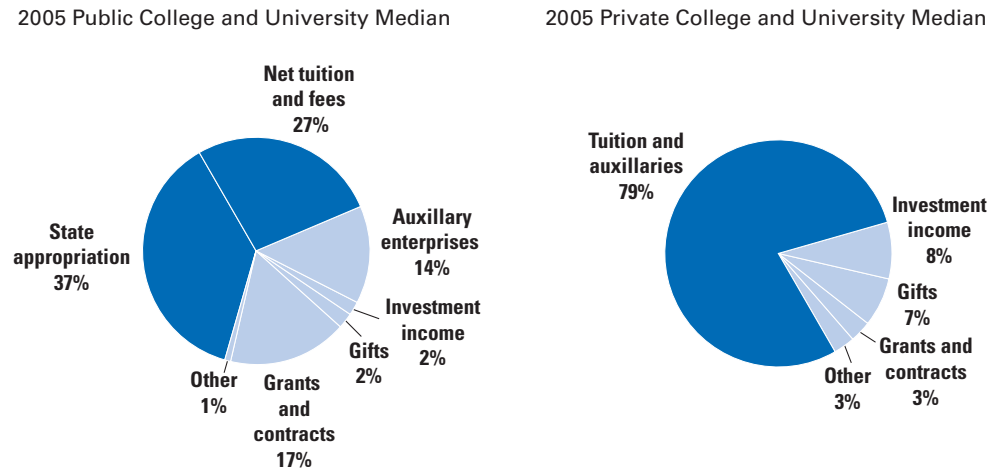
Some differences were observed between public and private institutions, with the median public university maintaining over 86 percent of its annual payroll in cash as against more than 74 percent for the median private university. Put another way, a public university maintains over 10 months of payroll in cash and a private university maintains over eight months of payroll in cash.

The predictability of cash flows and the cost of liquidity

Educational Institutions have an advantage over the corporate sector in that their cyclical cash flows – both in and out – are relatively predictable and consistent.

Contribution to Total Revenue

Figure 6



Source: Moody's Investors Services, Global Credit Research, 2006

The major components of cash inflows are student revenues (i.e., tuition and fees) and -- for public institutions -- state appropriations. Together, they total 64 percent of public higher education revenues and 79 percent of private higher education revenues. The cyclical nature of these revenues is consistent across institutions and over fiscal years. Tuition and fees have two primary periods of inflows – late summer (August/September) and mid-winter (January/ February). State appropriations, which make up 37 percent of revenues for public institutions, also have their own consistent cyclical nature: depending on the state, scheduled appropriation payments are made as a legislative mandate either monthly or quarterly. Operating cash outflows associated with educational institutions are also relatively consistent and predictable, as salaries and benefits are the primary components of the operating budget.

The predictable nature of these cash flows means that the level of cash balances within the institution at any time can in turn be projected with a reasonably high degree of confidence. While there are thousands of public and private colleges and universities in the country, our research shows the rhythm of these cash flows to be quite similar from campus to campus. Most institutions have two peaks in receiving of cash balances during the year, offset by cash operating expenses that occur at a consistent level throughout the year.

A closer look at cash flows

The experience of the Common Fund for Short Term Investments (“the Short Term Fund” or “STF”) provides a window onto the operating cash flows of educational institutions, particularly colleges and universities. The Short Term Fund, which can be used only by educational

institutions, has approximately 1,000 participating schools, colleges and universities. The program includes as its investors some of the largest universities and cash generators in the country – as well as approximately 200 entities that maintain cash balances under \$5 million. Because of the Short Term Fund’s wide range of participants and its role as an effective cash concentrator, changes in STF balances can serve as a reliable proxy for shifts in overall operating and cash balances for institutions of higher education.

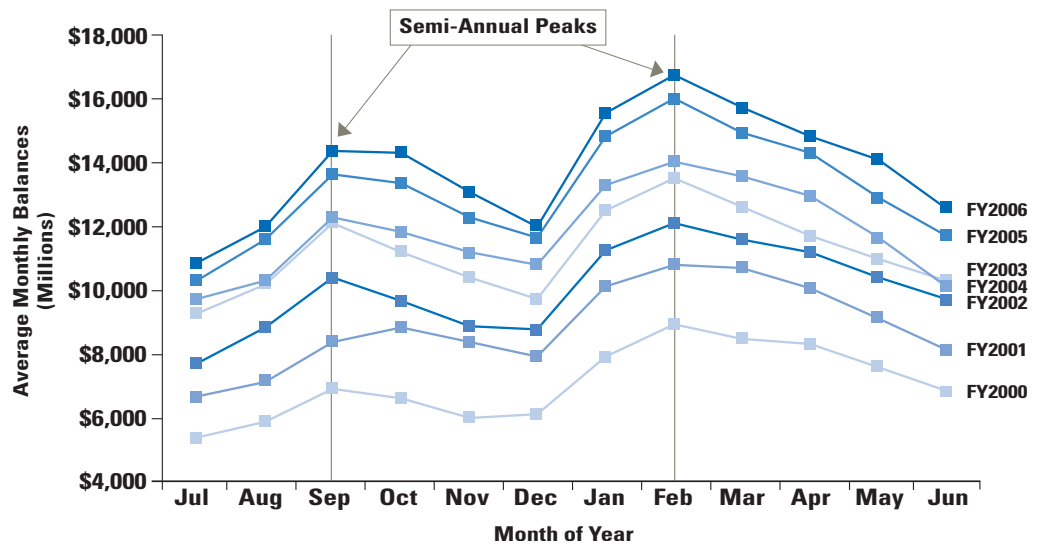
With so much of higher education’s operating assets in cash, the greatest opportunity within the higher education community is better segmentation and deployment of limited-term assets.

Figure 7 depicts the average daily collected balances in the Short Term Fund’s cash investment program from FY2000 through FY2006. A few conclusions may be drawn: First, and most obvious, the cyclical nature of higher education cash flows is unambiguous and consistent in each of these years. Cash balances in higher education reach their peaks in February and September, coinciding with tuition billing cycles on the majority of campuses.

Cyclical nature of Cash Flow for Educational Institutions

Figure 7

FY 2000 - FY 2006



Source: Commonfund Research

More interestingly for our purpose, Figure 7 also shows that these operating assets have been building up in a gradual and consistent manner over this period. During these years, the 1,000 participants in the Short Term Fund maintained a high cash level, rather than redeploying these balances in longer-term investment programs. The point is that the increase in liquidity at colleges and universities has been both steady and significant.

Cash: A new name might lead to new thinking

The term “cash” is in many ways a misnomer for non-endowment operating assets. By managing all operating assets (or assets required for day-in and day-out cash flows) as if they were cash, educational institutions are passing up the opportunity to analyze and invest these assets more effectively. Liquidity has a cost, and as excess liquidity is removed from the operating cycle it increases the opportunity to generate higher returns from the responsible redeployment of these assets. To use the analogy of a bank, institutions of higher education have a very dependable “deposit base” and a very liquid “balance sheet”. Thus, the ability to segment what is needed to meet liquidity needs from what is not immediately needed – what we define as “limited-term assets” – is very clear. Educational institutions should place as high a priority upon maximizing return on this “limited-term” segment as they do on its long-term endowment counterpart.

FYE Cash Balances to Total Annual Cash Operation Expenses

Figure 8

| Cash Generated from Operating Activities Operating Cash Balances | Number of Institutions | Cash/Operating Expense (Median) June 30, 2006 |
|---|------------------------|---|
| All Schools Surveyed | 107 | 34% |
| Public Institutions | 43 | 35% |
| Private Institutions | 64 | 30% |

Source: Commonfund Research, 2006

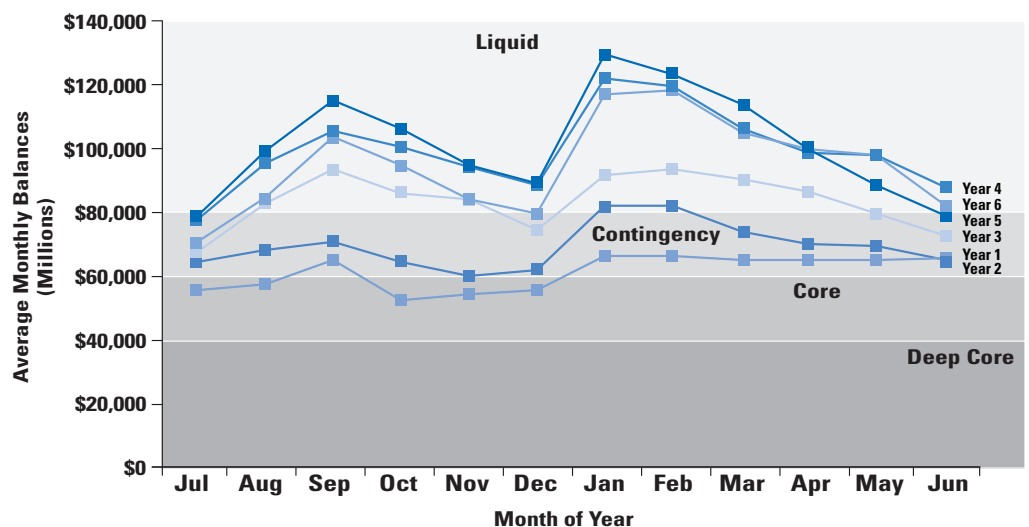
This accumulation of cash, however, has become – and continues to be – very inefficient for educational institutions. Instead, strategic segmentation and investment management of these excess cash balances represents a significant financial opportunity.

Moving away from cash

Figure 9 shows how non-endowment or operating assets can be segmented to better align the investment strategy for these limited-term assets with the actual liquidity needs of the institution. Assets that are needed to fund the annual cycle of operations – current cash operating expenses, of which compensation represents the single largest category as noted earlier -- are the only portion of the limited-term portfolio that can truly be deemed “liquid” and, consequently, should typically be maintained in dollar unitized pools such as money funds, bank sweep programs, commercial accounts and other dollar-in/dollar-out programs. Over the past few years, however, amounts invested in these pools have grown so that they now far exceed what is needed for operating liquidity.

Layers of Liquidity

Figure 9



Daily Liquidity Needs - assets that are accessed on a routine basis

Core Cash - assets NOT likely to be accessed in the next 3 to 5 years

Contingency Assets - assets unlikely to be accessed in the next 1 to 3 years

Deep Core Cash - assets almost never needed

Source: Commonfund Research, 2006

The first step in segmenting operating assets is to determine what is needed for daily expenses and what can be held for a longer time horizon. Figure 9 illustrates the liquidity needs of a hypothetical institution. The area highlighted in light blue represents the variability of cash balances deemed “liquid,” which swing between \$80 million and \$130 million through the year – a span of some \$50 million. If we assume that the institution must be able to meet its needs at the annual low point of this cash flow cycle, then the organization could maintain a maximum of \$50 million (\$130 minus \$80 million) of assets in a very liquid and accessible investment program.

With the institution’s basic liquidity needs identified and funded, those operating assets that the organization does not need for its annual expenditures (or has not accessed in over a one-year period) may be identified as the “contingency” layer of assets.

This layer represents the first level in what we define as the limited-term asset portfolio, and may be invested with a time horizon of one to three years. In Figure 9, the contingency layer is identified as asset levels that have not fallen below the FY2004 lows; another way to think of this layer is as the “buffer” assets in the limited-term asset portfolio.

Although maintaining these assets in a daily dollar unitized program might be too conservative, the danger of making these assets less accessible, or, potentially, more volatile has to be carefully considered. The impact of surprises and noncyclical events on cash flows needs to be covered, and the investments need to be transferable into cash with minimal notice. The portfolio characteristics of this type of asset include the minimal chance of loss over a one- to three-year time horizon with the ability to be transitioned into liquid assets with little to no forewarning. The next step is to identify those limited-term assets that can be further segmented into longer

Liquidity, or cash, has a cost, and if excess liquidity is removed from the operating cycle it will increase the probability of generating higher returns from the responsible redeployment of these assets.

time-based increments: the “core” and “deep core” asset levels in the portfolio. Core assets are defined as excess limited-term assets that have not been called upon for over five years. In Figure 9, this layer is shown as those operating assets that have not been used since Year 2. Consistent with its purpose, the core portfolio’s investment time horizon should be five years or longer, with acceptable volatility. Deep core assets should be considered nearly perpetual as there is little or no chance that the organization will need these funds for any type of day-to-day spending or operating needs. Accordingly, the investment horizon for this layer is essentially the same as that for endowed assets. Many organizations consider this segment to be reserve assets and invest them in the long-term pool as unrestricted quasi-endowment or funds functioning as endowment (FFE).

Two important concepts result from this operating asset segmentation:

- All operating assets should be invested consistent with an appropriate time horizon; and
- Distinctions should be made between operating assets that are true cash and those that represent various layers of limited-term assets.

Constructing the limited-term portfolio

To construct the treasury (or limited-term asset) portfolio, we need to:

- understand the organization's operating cash flows and the associated time horizon needs and segmentation of the portfolio; and
- establish an investment policy that considers appropriate risk and return metrics for each layer.

A critical component in constructing a policy portfolio for limited-term assets is an understanding of the liquidity needs of the organization. Treasury managers are responsible for estimating short- and long-term liquidity needs, and meeting these needs is a primary objective of the portfolio. This priority of the limited-term asset portfolio makes its management different from that of a long-term pool where cash, or liquidity, is generally minimized. As discussed earlier, one characteristic of higher education is that cash flows are reasonably consistent, measurable and predictable. Ideally, therefore, investment decisions in the limited-term portfolio should be based on the market environment and risk analysis, while also reflecting cash flow expectations.

Better management of an organization's liquidity flows reduces uncertainty, allowing assets to be invested rather than just held as emergency liquidity. There are, moreover, other important benefits to be gained by reducing liquidity and diversifying the limited-term asset portfolio.

Better management of an organization's liquidity flows reduces uncertainty, allowing assets to be invested rather than just held as emergency liquidity.

In addition to optimizing liquidity balances, a primary objective for the limited-term asset portfolio is to maximize the resources that can be made available to the organization from treasury operations. Historically, treasury managers have erred on the side of minimizing any chance of capital loss, at the expense of sacrificing potentially higher returns. As noted earlier, operating balances are often viewed as cash rather than as investable assets. Traditional cash investment strategies such as Commonfund's Short Term Fund and money market mutual funds are designed to accommodate the desire of many investors to earn regular income on their cash with no principal risk. An active treasurer, however, can create a portfolio that has superior risk-adjusted investment returns while better meeting the strategic needs of the organization.

For limited-term assets, return targets are often based on treasury rates, as many college and university treasurers typically use the 90-day Treasury bill rate as a benchmark for operating returns to "depositors" or for annual budget planning. Any excess return over the Treasury bill is deemed to be available to support the mission of the institution. The challenge of active treasury management is to balance the desire for higher returns with the need to manage investment risk and liquidity in the portfolio.

Risk can be defined in many different ways. Of particular concern to treasury managers is the risk of principal loss. A rudimentary way to quantify this risk is to analyze historical returns over various time periods, identifying the incidence of negative total returns generated in any period. Figure 10 shows return statistics for three popular fixed income indices – 3-month Treasury bills, the Merrill Lynch 1-3 Year Treasury Index and the Lehman Aggregate Bond Index – over a 10-year period. As a yield-based index, the 3-month T-bill has generated positive returns in all periods. Its minimum return in any one-year period was 1.0 percent and it had a maximum one-year return of 6.2 percent. The 1-3 Year and Lehman Aggregate are clearly more volatile indices. Both had periods of negative returns, although these were relatively infrequent over a one-year period. These indices also generated lower minimum returns than the 3-month T-bill, but had much greater return potential as demonstrated by their maximum returns.

Negative Return as a Risk Measure

Figure 10

January 1996 through December 2005

| | Actual Incidence of Negative Returns Over Period | | | Min/Max Returns Over Period | | | | | | | |
|--------------------------------------|--|-------|------|-----------------------------|------|--------|------|--------|-------|------|-------|
| | 1-Mo | 1-Qtr | 1-Yr | 1-Mo | | 1-Qtr | | 1-Yr | | 3-Yr | |
| | | | | Min | Max | Min | Max | Min | Max | Min | Max |
| 3 Month T-bill Yield | 0% | 0% | 0% | 0.1% | 0.5% | 0.2% | 1.6% | 1.0% | 6.2% | 1.3% | 5.5% |
| ML 1-3 Yr U.S. Treasury Index | 20% | 8% | 2% | (1.0%) | 1.7% | (1.1%) | 3.4% | (0.3%) | 10.8% | 1.5% | 7.5% |
| Lehman Aggregate Bond Index | 28% | 21% | 5% | (3.4%) | 2.7% | (3.0%) | 5.8% | (1.9%) | 14.6% | 3.6% | 10.9% |

Source: Commonfund Research, Bloomberg

Another approach to evaluating risk is to consider the standard deviation of returns, which captures the dispersion of returns around the mean. Greater risk within the portfolio is measured by a larger standard deviation of returns – a wider dispersion – and, hence, a greater chance of a negative return in any given time period. As expected, Figure 11 shows that the Lehman Aggregate has the largest standard deviation of returns followed by that of the 1-3 year Treasury Index and the 3-month T-bill.

Key Risk Metric - Standard Deviation
Figure 11

| As of December 31, 2005 | Avg. 5 Year Rolling Return (Annualized) | Standard Deviation |
|-------------------------------|---|--------------------|
| 3 Month T-bill Yield | 3.8% | 0.5% |
| ML 1-3 Yr U.S. Treasury Index | 5.5% | 1.6% |
| Lehman Aggregate Bond Index | 6.9% | 3.7% |

Source: Bloomberg, Commonfund Research. This report reflects historical performance for the period between January 1, 1996 and December 31, 2005.

The challenge for treasury managers is not just to measure or evaluate risk, but to manage the balance between higher potential returns and the increased risk required to obtain them. Investment managers have focused on several ratios that can be applied as tools to limited-term asset portfolios in seeking the appropriate balance. These are the Sharpe, Sortino and Calmar ratios.

Measuring Risk
Figure 12

| Metric | Formula | Metric Objective |
|--|--|---|
| Sharpe Ratio | | |
| A risk-adjusted measure, calculated using standard deviation and excess return to determine reward per unit of risk. The higher the sharp ratio, the better the fund's historical risk-adjusted performance. | $\frac{(\text{Rate of Return}) - (\text{T-bills})}{\text{Standard Deviation}}$ | Focuses on total risk in portfolio. |
| Sortino Ratio | | |
| A ratio used to measure risk-adjusted return, with the risk metric being downside deviation. | $\frac{(\text{Rate of Return}) - (\text{T-bills})}{\text{Downside Deviation}}$ | Focuses on <i>downside volatility</i> as a key measure of risk. |
| Calmar Ratio | | |
| A risk measure that relates maximum drawdown to annual return. | $\frac{\text{Compounded Annual Return}}{\text{Maximum Drawdown}}$ | Focuses on <i>maximum drawdown</i> as key risk metric. |

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- The **Sharpe ratio** shows the investor the excess return gained for each increment of upside or downside volatility that is accepted. A higher Sharpe ratio indicates that the investor is better rewarded for total risk.
 - The **Sortino ratio** evaluates risk-adjusted performance relative to downside deviation. By separating the concepts of volatility and risk into positive and negative components, the Sortino ratio allows an investor to judge whether the institution is being adequately rewarded for accepting the risk of negative volatility (downside) in a diversified portfolio.
 - The **Calmar ratio** relates annual return to the maximum drawdown and provides an indication of how quickly the portfolio recovers from the worst consecutive string of loss periods. The higher the Calmar ratio, the more quickly the portfolio recovers. Higher Calmar ratios are the result of shorter, less painful downward periods, higher average annual returns, or a combination of both. Equating the Calmar to time periods requires taking the inverse of the ratio and multiplying by 12. Example: A Calmar ratio of 5.73 equates to the maximum drawdown period being recovered in 2.09 months ($1 \text{ divided by } 5.73 = .17452$, multiplied by 12 = 2.09).

These ratios, while important risk measures, do not give a “best policy portfolio” answer on their own. Each organization must construct an optimal limited-term asset portfolio based on its own specific liquidity requirements, return objectives and risk tolerances.

Moving out on the curve

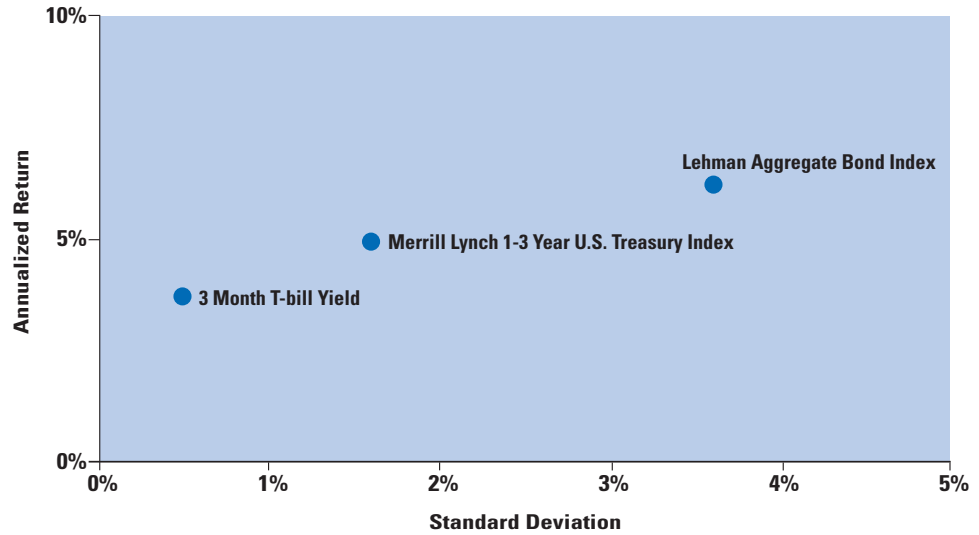
If the organization is confident about its cash forecast or layers of liquidity, as we have discussed above, the portfolio manager can benefit by taking excess liquidity out of the limited-term portfolio and matching the time horizon of its operating cash balances with its investments. Traditionally, in seeking to optimize risk-adjusted returns on the portfolio, the treasurer will move out on the yield curve, investing in high-quality fixed income instruments to capture the liquidity or term premium and to add incremental value over cash returns. Cash balances are segmented according to liquidity requirements, with the duration of the assets generally being matched with the liabilities they are expected to fund.

While liquid assets remain in dollar unitized programs, contingency assets can be moved to one- to three-year duration investment programs and core assets can be moved to five- to seven-year duration assets.

Moving out on the Yield Curve

Figure 13

From January 1996 - December 2005



Source: Style Advisor

Those assets needed for daily operating liquidity can remain in dollar unitized programs, while contingency working capital can be moved to investment programs having a duration of one to three years and core/deep core assets can be moved to five- to seven-year duration investments.

Moving out on the Yield Curve

Figure 14

| As of December 31, 2005 | Minimum 1 Year Rolling Return | Avg. 5 Year Rolling Return (annualized) | Maximum 1 Year Rolling Return | Annual Standard Deviation | Sharpe Ratio | Sortino Ratio | Calmar Ratio |
|-------------------------------|-------------------------------|---|-------------------------------|---------------------------|--------------|---------------|--------------|
| 3 Month T-bill Yield | 1.0% | 3.8% | 6.2% | 0.5% | 0.06 | - | - |
| ML 1-3 Yr U.S. Treasury Index | (0.3%) | 5.5% | 10.8% | 1.6% | 0.67 | 1.23 | 4.50 |
| Lehman Aggregate Bond Index | (1.9%) | 6.9% | 14.6% | 3.7% | 0.66 | 1.01 | 1.73 |
| | Asset Allocation | | | | | | |
| | Hypothetical Scenario 1 | Hypothetical Scenario 2 | Hypothetical Scenario 3 | | | | |
| 3 Month T-bill Yield | 100% | 66.5% | 33.3% | | | | |
| ML 1-3 Yr U.S. Treasury Index | - | 33.5% | 33.3% | | | | |
| Lehman Aggregate Bond Index | - | - | 33.4% | | | | |
| Total | 100% | 100% | 100% | | | | |
| | Minimum 1 Year Rolling Return | Avg. 5 Year Rolling Return (annualized) | Maximum 1 Year Rolling Return | Annual Standard Deviation | Sharpe Ratio | Sortino Ratio | Calmar Ratio |
| Hypothetical Scenario 1 | 1.0% | 3.8% | 6.2% | 0.5% | 0.06 | - | - |
| Hypothetical Scenario 2 | 0.8% | 4.4% | 7.2% | 0.7% | 0.53 | 1.33 | 15.03 |
| Hypothetical Scenario 3 | 0.4% | 5.4% | 9.8% | 1.7% | 0.66 | 1.11 | 3.75 |

Source: Bloomberg, Commonfund Research. These hypotheticals are based on the historical performance of the constituent indices for the period between January 1, 1996 and December 31, 2005. See Important Notes-Hypothetical Asset Allocations at the end of this paper.

Figures 13 and 14 illustrate the benefits of committing funds further out on the yield curve. By investing in the Merrill Lynch 1-3 Year U.S. Treasury Index rather than in 3-month T-bills, returns increase over the average five-year period from 3.8 percent to 5.5 percent. The additional 170 basis-point return comes with a higher risk than cash equivalents, but this risk is still relatively low. Over the 10-year period shown, the worst one-year period return for the Merrill Lynch 1-3 Year U.S. Treasury Index was slightly negative at -0.3 percent, and the best 12-month period return was 10.8 percent. The standard deviation was 1.6 percent over the 10-year period.

An investment in the Lehman Aggregate Bond Index would move funds even further out on the yield curve than the Merrill Lynch 1-3 Year Treasury Index, and also add some exposure to the mortgage and investment-grade credit sectors. This index had an average five-year return of 6.9 percent, 310 basis points higher than that of the 3-month Treasury bill. The risk that accompanies this higher return is an increase in standard deviation over the 10-year period to 3.7 percent and a minimum one-year period return of -1.9 percent. By expanding the investor's perspective and committing assets to a longer time horizon, the investor obtains a broader distribution of returns and a higher expected average return to compensate for the increased risk.

Hypothetical scenario 2 in Figure 14 illustrates the benefit of including longer duration fixed income securities in a limited-term portfolio. One-third of the portfolio has been moved from cash into the Merrill Lynch 1-3 year Treasury Index, which could be considered as contingency assets. As a result, the average five-year rolling return is improved by 60 basis points annually with only a modest increase in standard deviation – from 0.5 percent to 0.7 percent. By modestly extending duration in a portfolio, the investor can improve returns and maintain a high Calmar ratio due to the relatively small drawdown risk.

Diversification plays a significant role in long-term portfolios but is somewhat overlooked when it comes to limited-term assets.

Hypothetical Scenario 3 extends the portfolio even further by allocating one-third of the assets to the Lehman Brothers Aggregate Bond Index. This allocation matches well with core cash, as described in the liquidity analysis. As shown in Figure 14, the average five-year return in Scenario 3 is 160 basis points over that generated by 3-month T-bills alone. Risk is clearly higher, as evidenced by the standard deviation which rises to 1.7 percent. However, the minimum rolling one-year return is positive, and the portfolio is rewarded for the additional risk as the Sharpe ratio is higher than that in Scenario 2 and the Sortino ratio remains above one. The Calmar ratio is also very good, as we would expect the portfolio to recover from a maximum drawdown period in just over three months.

Hypothetical Scenario 3 also happens to illustrate the benefits of diversification. It incorporates securities with durations that extend throughout the yield curve and generates similar average returns with approximately the same standard deviation as the Merrill Lynch 1-3 Year U.S. Treasury Index. However, the minimum one-year return over the period is significantly higher for the diversified portfolio (0.4 percent) than it is for the more concentrated 1-3 year investment portfolio (-0.3 percent). By diversifying a limited-term portfolio over multiple points on the yield curve the portfolio maintains necessary liquidity and reduces the chance of a negative return over a 12-month period.

In addition to the benefits to be obtained by moving out on the yield curve, the treasurer can also benefit significantly from portfolio diversification, combining unique assets to minimize downside movement while capturing much of the upside return. Endowment portfolio managers have long understood the power of diversification as well as the limitations and the opportunity cost of single asset class portfolios. The expertise built up on the endowment can also be applied effectively to the operating portfolio. Diversification plays a significant role in long-term portfolios, but is somewhat overlooked when it comes to limited-term assets.

It really is a sea change – from thinking of operating reserves strictly from a cash flow perspective to approaching them as a portfolio that should be invested with a goal of maximizing returns within a risk/reward framework ...

Investors can combine different investment strategies with different inherent attributes – and all with positive expected excess returns – to achieve a more efficient portfolio. This concept can be demonstrated by analyzing the relationship between the Merrill Lynch 1-3 Year Treasury Index and bank loans. As discussed earlier, the 1-3 year index can add to a limited-term portfolio by capturing some of the term premium available in the fixed income market. In bank loans, however, unlike the 1-3 year index, there is limited interest rate risk. This is because bank loan interest rates are adjustable at short intervals, historically in the range of 3-month LIBOR plus 250 basis points. Instead, investors in bank loans accept a combination of increased credit risk (as a result of extending direct credit to named, non-risk-free borrowers) and reduced liquidity (the secondary market for bank loans is dwarfed by the market for Treasury securities).

Benefits of Diversification

Figure 15

| As of December 31, 2005 | 5-Year Rolling Averages | | 10-Year Annualized | | | |
|---|----------------------------|--|---------------------------|--------------|---------------|--------------|
| | 5 Year Return (Annualized) | Annual Return in Excess of 3 Mo T-bill | Annual Standard Deviation | Sharpe Ratio | Sortino Ratio | Calmar Ratio |
| ML 1-3 Yr U.S. Treasury Index | 5.5% | 1.8% | 1.6% | 0.67 | 1.23 | 4.50 |
| CSFB Leveraged Loans | 5.0% | 1.3% | 2.1% | 0.90 | 1.26 | 1.27 |
| Hypothetical Scenario: 50% ML 1-3 Yr Tsy and 50% CSFB | 5.3% | 1.5% | 1.1% | 1.35 | 2.51 | 9.34 |

Source: Bloomberg, Commonfund Research. These hypotheticals are based on the historical performance of the constituent indices for the period between January 1, 1996 and December 31, 2005. See Important Notes-Hypothetical Asset Allocations at the end of this paper.

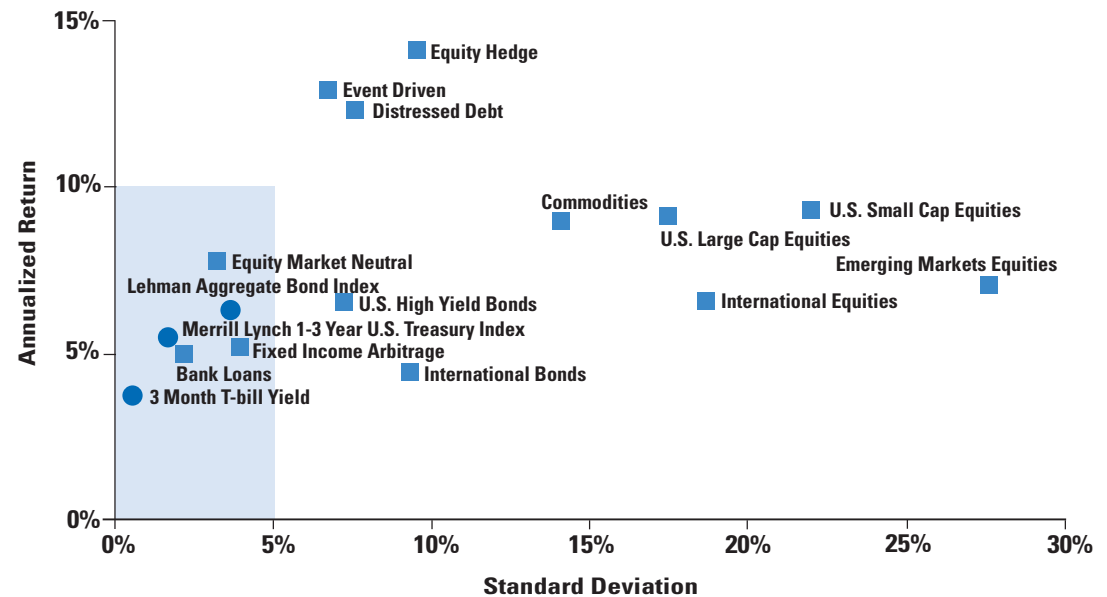
Figure 15 provides performance data for the Merrill Lynch 1-3 Year Index and the Credit Suisse First Boston Leveraged Loan Index, which is used as a proxy for the bank loan universe. Historically, both assets have had a positive return relative to cash, reflecting their greater degree of relative risk. While both provide reasonable risk-adjusted returns in their own right, the more interesting aspect is the implication of combining the two strategies. The benefit is that they are not highly correlated and are often counter-cyclical. In fact, a combination of the two in equal parts results in a more efficient portfolio than investing in either asset individually. An equally weighted portfolio of the two indices provides an average five-year return equal to the average of the two assets, but, more importantly, the combined portfolio results in improved risk statistics in every area, including standard deviation, Sharpe ratio, Sortino ratio and Calmar ratio.

This is a simple tactical example of what can be done through diversification. The strategic challenge for treasury managers is to structure limited-term asset portfolios that are effectively and efficiently diversified. This represents a sea change – from thinking of operating reserves strictly from a cash flow perspective to approaching them as a portfolio that should be invested with a goal of maximizing returns within a risk/reward framework appropriate for the needs and uses of the capital. Figure 16 illustrates some of the potential in broadening the opportunity set of investment strategies. The treasurer who understands total return investing, the benefits of investing for a longer time horizon – “timeframe arbitrage” – and the key risk metrics to be targeted can develop a better policy portfolio for the management of operating assets.

Broadening the Opportunity Set

Figure 16

From January 1996 - December 2005



Source: Style Advisor; Altvest. The following are the indices used by asset class: U.S. Government Bonds; Lehman Aggregate Bond Index; U.S. High Yield Bonds; Merrill Lynch High Yield Master II; International Bonds, Citigroup World Gov't. Bond Index; U.S. Large Cap Equities, S&P 500 Index; U.S. Small Cap Equities, Russell 2000 Index; International Equities, MSCI World Ex-US Index; Emerging Markets Equities, MSCI EMF Index; Distressed Debt, HFRI Distressed Securities Index; HFRI Equity Hedge Index; HFRI Event Driven Index; HFRI Equity Market Neutral Index; HFRI Fixed Income Arbitrage Index; Commodities, Dow AIG Commodity Index.

Summary

This paper describes the benefits that can result from a more dynamic approach to investing operating and non-endowment assets. By shifting from an overly conservative and highly short-term oriented mindset -- which results in the accumulation of cash assets beyond what is likely ever to be needed -- the treasury manager has an opportunity to enhance the financial assets of his or her institution.

Some forward-thinking organizations are already moving in this direction by looking at their financial operations as an independent service provider, or “internal bank.” This perspective represents an important transformation for institutions of higher education and other nonprofit organizations – one that should create new opportunities for these institutions to maximize their net operating resources.

Commonfund’s point of view is that the nonprofit sector maintains excessive levels of liquidity and does not apply sufficiently rigorous standards to gauge asset productivity. The movement of extraneous liquidity to alpha-generating strategies can enable the organization to realize real returns on all of its financial assets. Moreover, this can be accomplished prudently through diversification and risk analysis.

Commonfund believes that nonprofit investors can successfully move their operating and limited-term portfolios beyond a viewpoint bound by traditional fixed income investments. “Going out on the curve” is only one of the strategies that can be followed in managing a limited-term asset portfolio. A more flexible investment policy that employs broader diversification would provide a more effective means of managing these assets in different market environments. Ultimately, the nonprofit organization, through the internal bank managed by the treasury office, can generate enhanced risk-adjusted returns within its limited-term asset pool.

With regard to operating assets, it is just as important to minimize negative returns by utilizing diversified strategies as to add more income-generating strategies. To do this, the nonprofit organization needs to evaluate the asset pool utilizing multiple risk metrics to minimize the probability of negative occurrences. The combination of minimized downside risk, compounding of stabilized positive returns and the addition of diversified opportunistic strategies results in a high probability of securing superior long-term performance and the accumulation of tangible net worth.

Stable, positive, real returns are a paramount goal for the effective internal bank. Our review details the processes and analytics available to manage limited-term asset pools. This study focuses on one large component of the organization’s balance sheet, and therefore addresses one aspect of an effective internal bank. As organizations restructure their treasury operations into asset-generating “banks,” this component becomes a significant contributor to overall success and the financial well-being of the nonprofit organization.

Important Legal Disclosure

Hypothetical Asset Allocation

Important Notes – Limited Term Asset Allocation Review

Returns for the scenarios assume a fixed allocation to each asset class that is rebalanced monthly, which may not necessarily depict the actual rebalancing process that likely would have taken place had an actual investor been managing these portfolios at the institution. These hypothetical scenarios do not represent the actual experience of any investor and do not represent recommendations of Commonfund Asset Management Company, Inc.

Quarterly and yearly calculations are based on rolling 3-month, 12-month and 36-month periods.

General

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