RESEARCH NOTE

December 2008

Managing Spending and Liquidity Needs through the Downturn

The turmoil in the global financial markets has made this a dreadful year for most institutional portfolios. We estimate that the typical endowment has declined by around 27% in 2008 with most of those losses coming since early September. By comparison, we estimate that a diversified endowment only declined by around 15% on a cumulative basis during the last bear market (2000 to 2002). Equity market declines have been compounded by stress in the credit markets. Some cash and fixed income products previously thought to be liquid have turned illiquid. Additionally, many institutions have increased their exposure to illiquid alternative investments in recent years. These events have left many institutions investors questioning whether they have sufficient liquidity to meet their spending needs and cover capital calls.

The typical institution is unlikely to experience a liquidity crisis and should be able to meet spending and capital call needs over the next 12 to 18 months. However, due to market declines, dollar spending is likely to drop sharply in coming periods for institutions that stick to their spending rules. For institutions where the endowment draw represents a relatively small portion of the overall budget, this situation will be difficult, but should be manageable. However, universities for which the endowment draw represents a large portion of the overall budget, this situation presents a more difficult problem. Institutions that wish to maintain current dollar spending will be forced to draw down their endowments and substantially increase their effective spending rate. In this paper, we discuss the impact that the bear market might have on an institution's investment policy, its actual dollar spending, its effective spending rate, and its liquidity position.

Section 1: The Impact of the Market Downturn on Asset Allocation

Table 1: Estimated Asset Allocation for the Typical NACUBO Institution[1]

	Jun-07	Jun-08	Current (as of 12/08)
Equities	**58%**	**52%**	**44%**
Private Equity	3%	5%	5%
Total Growth Assets	**61%**	**57%**	**49%**
Cash	4%	4%	5%
Fixed Income	**19%**	**20%**	**27%**
Hedge Funds	**11%**	**13%**	**14%**
Total Risk Protection	**34%**	**47%**	**46%**
Real Assets	5%	6%	5%
Total Inflation Protection	5%	6%	5%

[1] Assumes no rebalancing since June 2008.

As a result of the steep equity market decline, the actual asset allocation for a typical institution that has not yet rebalanced is likely to be substantially different from its target asset allocation policy. Not surprisingly, the average endowment is likely to be underweight policy to equities and significantly overweight to fixed income and cash. (Hedge funds should also be above policy, as most hedge fund portfolios have not performed as poorly as the equity market.) As a result, many institutions can fund their spending needs simply by returning the fixed income and cash allocations to policy. Therefore, institutions can avoid selling equities at depressed levels to fund spending. Assuming that the typical institution's effective spending rate will be around 6% in FY 2010, this recommendation would not result in institutions completely returning back to policy (see Table 2). We urge institutions to rebalance to equities but it may have to be a gradual process due to hedge fund lock-ups. However, raising cash needs by liquidating fixed income is a good first step to take in terms of returning to policy.

Hammond Associates typically recommends that institutional investors adopt rebalancing guidelines and continue to apply those guidelines even during volatile periods like those we have been experiencing. Institutions that have been rebalancing back to policy during the sell-off should have sufficient exposure to liquid assets (75% of the portfolio) to fund spending. However, covering spending out of liquid assets might result in institutions being temporarily out of policy due to hedge fund lock-ups, so again returning to policy will be a gradual process.

Clients should also continue to fund capital calls through their pro-rata policy dollars (we will discuss this in more detail in the third section of this report). We should note that at endowments where the actual allocations to private equity and illiquid real assets are equal to their target allocations, raising funds to cover capital calls might be a little more difficult. This might require that institutions fund capital calls from their traditional equity allocations. However, we think it is acceptable to slightly underweight stocks and slightly overweight private equity in order to meet capital calls. For the most part, this would result in the allocation to growth assets being the same and we think that the current opportunities in the private equity space are more attractive than those in the traditional equity market.

Table 2: Before and After Asset Allocation Policy (raising spending from fixed income)

	Typical NACUBO Policy	Current (as of 12/08)	After meeting spending
Equities	**52%**	**44%**	**47%**
Private Equity	5%	5%	5%
Total Growth Assets	**57%**	**49%**	**52%**
Cash	4%	5%	5%
Fixed Income	**20%**	**27%**	**22%**
Hedge Funds	**13%**	**14%**	**15%**
Total Risk Protection	**47%**	**46%**	**42%**
Real Assets	6%	5%	5%
Total Inflation Protection	6%	5%	5%

Section 2: The Impact of the Market Downturn on Spending

Case 1: Monte Carlo Simulation for the Typical Endowment

Key Assumptions:

- Starting market value as of December 2008 is $100M
- 3% historical contribution rate
- 2% future contribution rate (assumes more difficult fundraising environment)
- Fiscal year (ends June 30th, starts July 1)
- Spending = 5% of rolling 12 quarter market value ending with the fourth quarter preceding the next fiscal year (FY2010 spending based on quarterly market values ending 12/31/2008)
- Asset allocation assumptions based on NACUBO average asset allocation (June 2008 portfolio)
- The average expected rate of return on this portfolio is 9.5% over the next 10 years. The expected standard deviation on this portfolio is 10.6%.
- Under the 5th percentile scenario, the portfolio would return about 30%, annualized, over the next 2 years. Under a downside-case scenario (95th percentile) the portfolio would decline by around 13%, annualized, over the next 2 years. (This assumes a normal volatility environment, which may be optimistic for the next two years.)

Table 3: Case 1: Dollar Spending ($Millions)

Spending	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
5th Percentile	6.6	6.4	6.1	6.5	7.3	8.2	9.2	10.3	11.5	12.8	14.3
25th Percentile	6.6	6.2	5.8	5.8	6.3	6.8	7.4	8.0	8.8	9.6	10.5
Median	6.6	6.1	5.5	5.4	5.6	5.9	6.3	6.7	7.2	7.8	8.4
75th Percentile	6.6	6.1	5.3	4.9	5.0	5.1	5.4	5.6	6.0	6.3	6.7
95th Percentile	6.6	5.9	5.0	4.4	4.2	4.2	4.2	4.3	4.5	4.7	4.9

Chart 1: Case 1: Dollar Spending ($Millions)

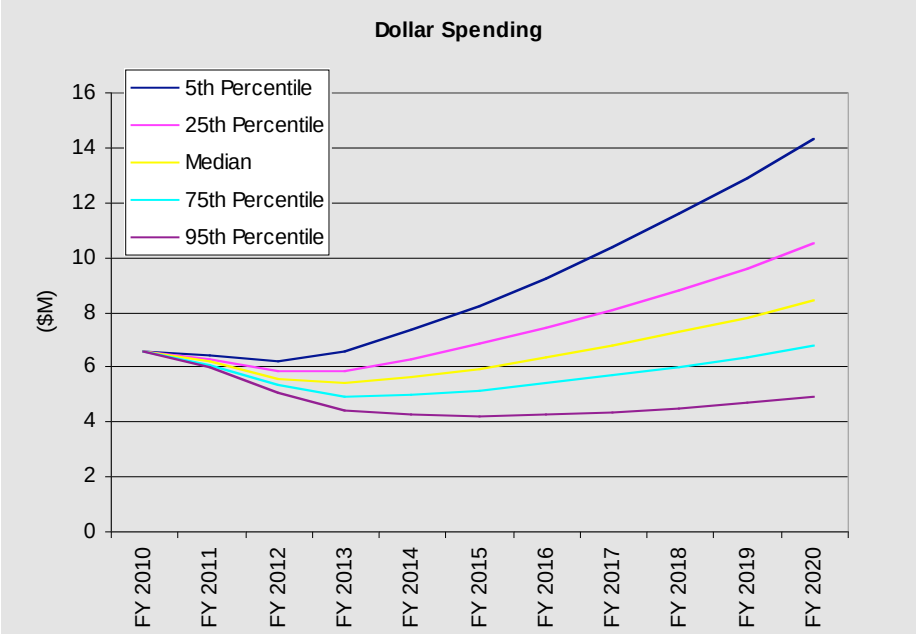
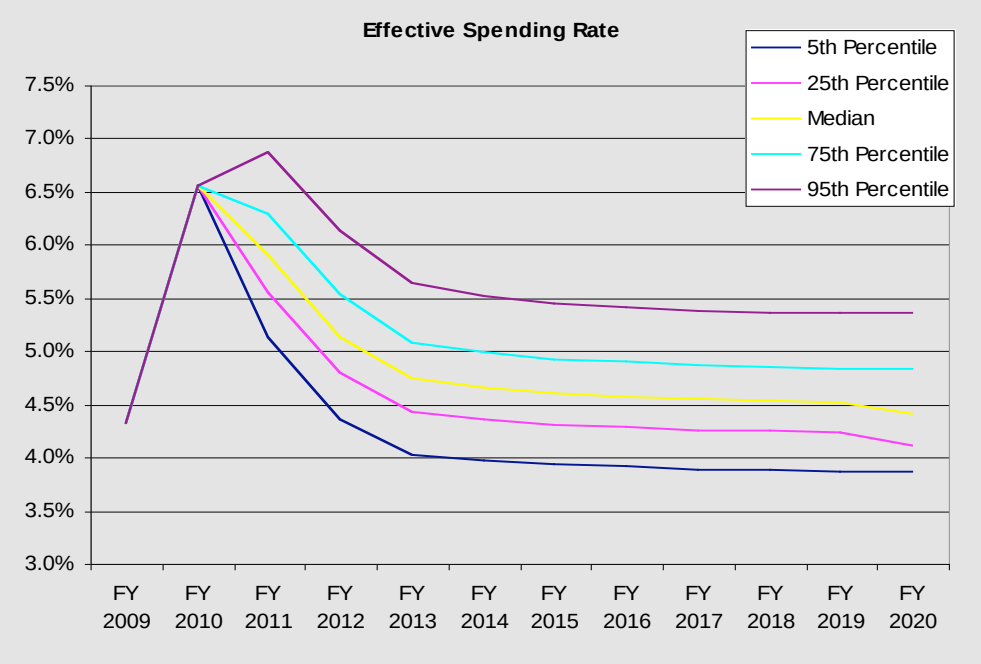


Chart 1 shows projected dollar spending for a typical endowment over the next 10 years. Based on this analysis, spending is likely to decline substantially in coming years as lower market values roll into the spending formula. Under the median case, spending is likely to decline by 18% between FY 2010 and FY 2013. On a nominal basis, it could take until FY 2017 for dollar spending to return to FY 2010 levels. In real terms, spending is likely to stay depressed even longer (FY 2021 or FY 2022). Dollar spending is unlikely to decline in FY 2010 relative to FY 2009 levels. This is because the average value of the endowment for 2008 is higher than the average value of the endowment during 2005 (the spending formula adds 2008 and drops 2005). Spending begins to decline in FY 2011.

Table 4: Case 1: Effective Spending Rate

% of Market Value	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
5th Percentile	**4.3%**	**6.6%**	**5.1%**	**4.4%**	**4.0%**	**4.0%**	**3.9%**	**3.9%**	**3.9%**	**3.9%**	**3.9%**	**3.9%**
25th Percentile	4.3%	6.6%	5.6%	4.8%	4.4%	4.3%	4.3%	4.3%	4.3%	4.2%	4.2%	4.1%
Median	**4.3%**	**6.6%**	**5.9%**	**5.1%**	**4.7%**	**4.6%**	**4.6%**	**4.6%**	**4.5%**	**4.5%**	**4.5%**	**4.4%**
75th Percentile	4.3%	6.6%	6.3%	5.5%	5.1%	5.0%	4.9%	4.9%	4.9%	4.8%	4.8%	4.8%
95th Percentile	4.3%	6.6%	6.9%	6.1%	5.6%	5.5%	5.5%	5.4%	5.4%	5.4%	5.4%	5.4%

Chart 2: Case 1: Effective Spending Rate

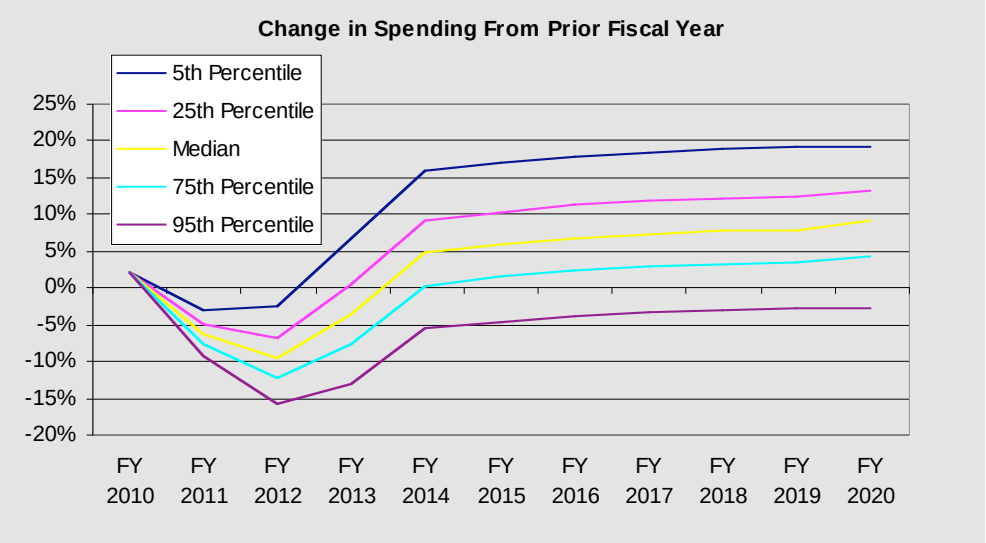


As noted earlier, we assumed a 5% spending rate on the trailing 12-quarter moving average market value. Of course, an institution's effective spending rate (actual dollar spending/current market value) will differ from 5% based on realized returns and contributions. We estimate that the *effective* spending rate for the typical endowment is likely to be greater than 6% over the next 2 years. Under the median case, effective spending rates will return to 5% starting in FY 2012. Of course, this also assumes that institutions are able to reduce spending to the amounts show in Table 3, which may or may not be possible given the fixed cost structure of a typical university or college.

Table 5: Case 1: Change in Spending from prior Fiscal Year

	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
5th Percentile	2%	-3%	-3%	7%	16%	17%	18%	18%	19%	19%	19%
25th Percentile	2%	-5%	-7%	0%	9%	10%	11%	12%	12%	12%	13%
Median	**2%**	**-6%**	**-10%**	**-4%**	5%	6%	7%	7%	8%	8%	9%
75th Percentile	2%	-8%	-12%	-8%	0%	1%	2%	3%	3%	3%	4%
95th Percentile	2%	-9%	-16%	-13%	-6%	-5%	-4%	-3%	-3%	-3%	-3%

Chart 3: Case 1: Change in Spending from Prior Fiscal Year



If institutions wish to maintain their current spending formula, then dollar spending is unlikely to decrease in FY 2010. However, we expect that dollar spending will decline each year from FY 2011 to FY 2013. The most significant spending decline (10%) is likely to occur from FY 2011 to FY 2012.

Implications

Spending is likely to decline substantially for the typical endowment over the coming fiscal years. If the endowment draw represents a relatively small portion of the overall budget, then it might be possible for schools to cut costs or tap other sources of funding. For schools in which the endowment draw represents a large portion of the operating budget, the situation is far more difficult. Since spending is likely to decline gradually over the course of several years, this gives institutions some flexibility and time to adjust. However, given the fixed cost spending structure of many colleges, such declines still might not be manageable and institutions might be forced to draw down their endowments to maintain current levels of spending. Naturally, if the market rebounds strongly (5^{th} percentile case), this effect will be mitigated, but there is also a chance that matters worsen from here (95^{th} percentile case).

Case 2: What happens if spending can't be cut?

We realize that the typical university might not be able to reduce spending by the dollar or percentage amounts shown above. Thus, we present a second case in which institutions grow actual dollar spending by 3% a year over the next 10 years to keep real spending constant.

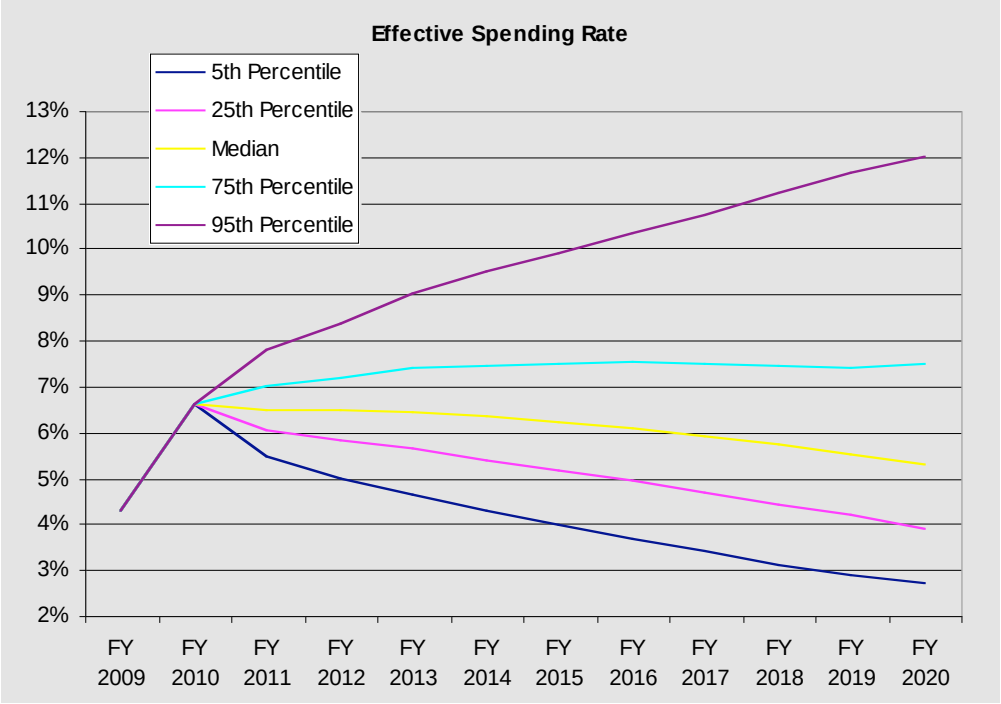
Key Assumptions:

- Starting market value as of December 2008 is $100M
- 3% historical contribution rate
- 2% contribution rate going forward
- Spending formula= Grow spending by 3% a year.
- Fiscal year (ends June 30th, starts July 1)
- Asset Allocation Assumptions based on NACUBO median (June 2008 portfolio)
- The average expected rate of return on this portfolio is 9.5% over the next 10 years. The expected standard deviation on this portfolio is 10.6%.
- Under the 5th percentile scenario, the portfolio would return about 30%, annualized, over the next 2 years. Under the worst-case scenario (95th percentile) the portfolio would decline by around 13%, annualized, over the next 2 years.

Table 6: Case 2: Actual Dollar Spending ($ millions)

Spending	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
FY 2009@3%	6.4	6.6	6.8	7.0	7.2	7.4	7.7	7.9	8.1	8.4	8.6	8.9

Chart 4: Case 2: Effective Spending Rate



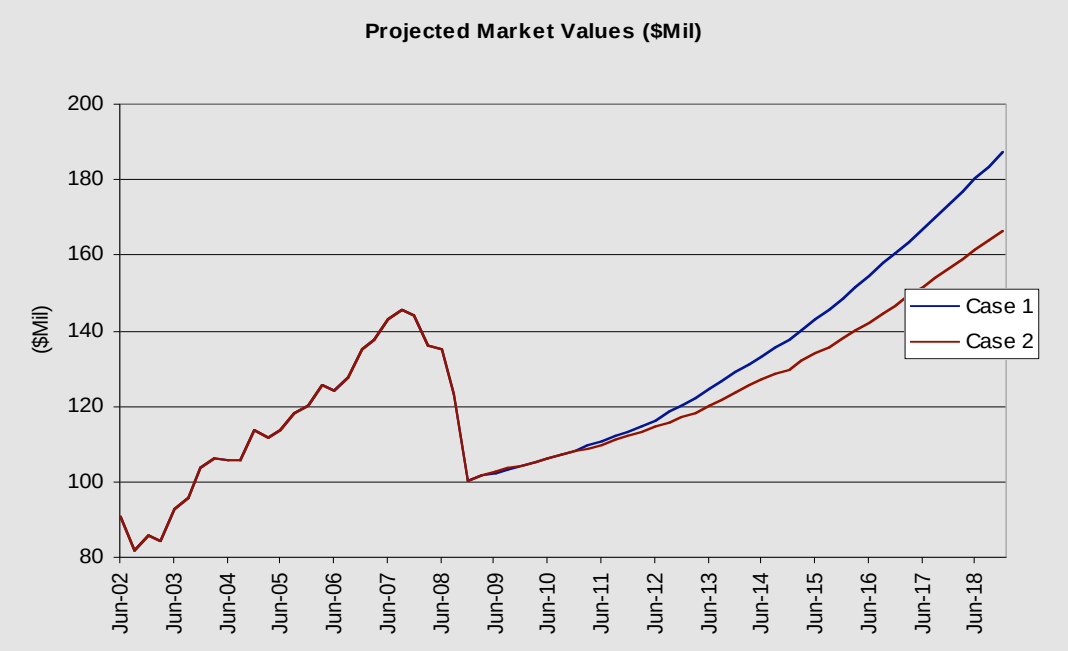
If institutions are unable to cut spending aggressively over the next few years and instead wish to grow dollar spending by 3% a year, then they will draw down a greater percentage of their endowment. Under this spending formula, the effective spending rate would be greater than 6% from FY 2010 to FY 2016. While this approach protects current spending, it will result in lower market values in future periods, thus sacrificing future spending to support current spending. If markets continue to deteriorate, spending could rise well above 6%, as indicated by the 75th and 95th percentile cases above.

Market Value Comparisons: Case 1 vs. Case 2

In the median scenario, the market value of an institution that follows the spending rule described in Case 1 will exceed the market value of an institution that adopts the spending rule described in Case 2 by around $20M, or 13%, by 2018.

The bear market has sharply eroded the value of most endowments, wiping out five years of gains. We estimate that for the typical institution, the ending value of the endowment as of December 2008 will be equal to the market value as of fall 2003. For Case 1, under the median scenario, we estimate that the typical endowment will not return to 2007 levels until 2015. For Case 2, under the median scenario, we estimate that the typical endowment will not return to 2007 levels until 2017.

Chart 5: Market Values Under the Median Scenario



Case 3: The Typical Foundation

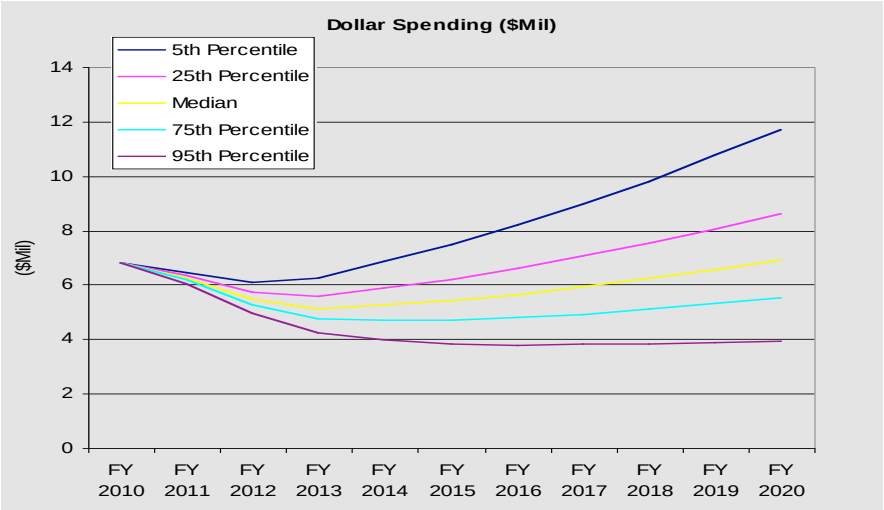
Key Assumptions:

- Starting market value as of December 2008 is $100M
- No contributions
- Spending formula = 5% of rolling 12 quarters and is calculated on December 31
- Fiscal year (ends June 30th, starts July 1)
- Asset Allocation Assumptions based on NACUBO median (June 2008 portfolio)
- The average expected rate of return on this portfolio is 9.5% over the next 10 years. The expected standard deviation on this portfolio is 10.6%.
- Under the 5th percentile scenario, the portfolio would return about 30%, annualized, over the next 2 years. Under the worst-case scenario (95th percentile) the portfolio would decline by around 13%, annualized, over the next 2 years.

Table 7: Case 3: Actual Dollar Spending ($Millions)

Spending	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
5th Percentile	6.8	6.4	6.1	6.2	6.8	7.5	8.2	8.9	9.8	10.7	11.7
25th Percentile	6.8	6.3	5.7	5.5	5.8	6.2	6.6	7.1	7.5	8.0	8.6
Median	6.8	6.2	5.5	5.1	5.2	5.4	5.6	5.9	6.2	6.5	6.9
75th Percentile	6.8	6.2	5.2	4.7	4.7	4.7	4.8	4.9	5.1	5.3	5.5
95th Percentile	6.8	6.0	5.0	4.2	3.9	3.8	3.8	3.8	3.8	3.9	3.9

Chart 6: Case 3: Actual Dollar Spending

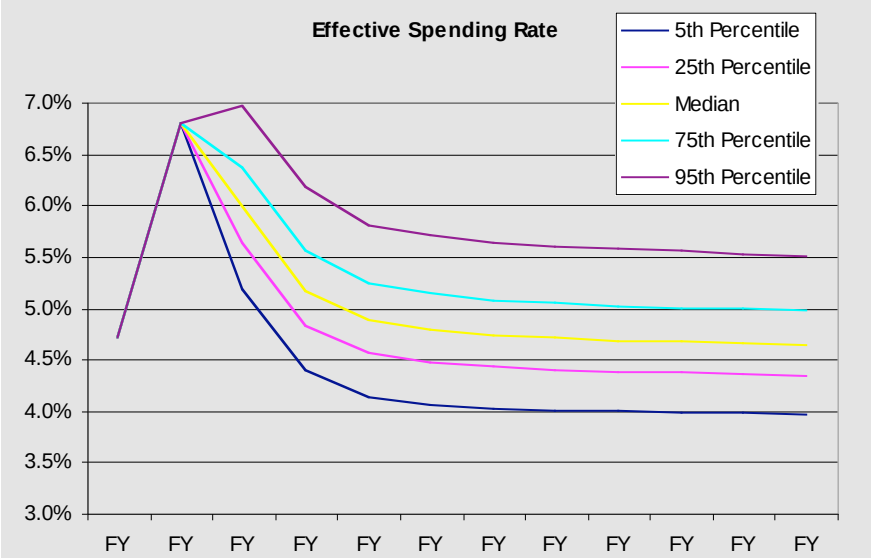


Unlike under the endowment scenario, we assume no contributions for the typical foundation. As a result, for the typical foundation spending declines more and the recovery takes longer. Under the median case, spending is forecasted to decline from $6.8 million in FY 2010 to $5.1 million in FY 2013, a 25% decline. In nominal dollars, spending is unlikely to recover until FY 2020. In real terms, spending is likely to stay depressed even longer.

Table 8: Case 3: Effective Spending Rate

% of Market Value	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
5th Percentile	4.7%	6.8%	5.2%	4.4%	4.1%	4.1%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
25th Percentile	4.7%	6.8%	5.6%	4.8%	4.6%	4.5%	4.4%	4.4%	4.4%	4.4%	4.4%	4.3%
Median	4.7%	6.8%	6.0%	5.2%	4.9%	4.8%	4.7%	4.7%	4.7%	4.7%	4.6%	4.6%
75th Percentile	4.7%	6.8%	6.4%	5.6%	5.2%	5.1%	5.1%	5.0%	5.0%	5.0%	5.0%	5.0%
95th Percentile	4.7%	6.8%	7.0%	6.2%	5.8%	5.7%	5.6%	5.6%	5.6%	5.5%	5.5%	5.5%

Chart 7: Case 3: Effective Spending Rate

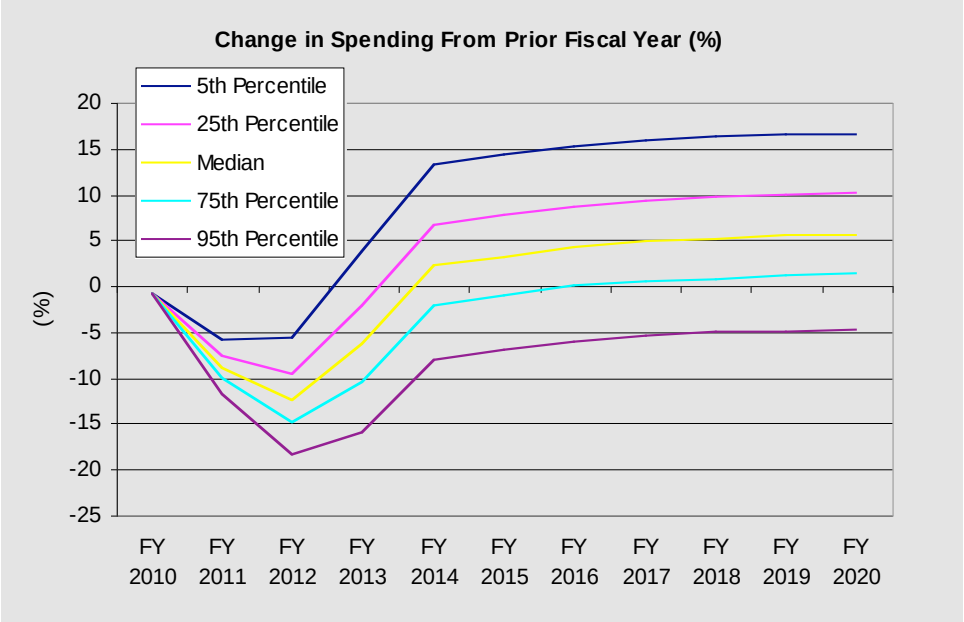


Under the median case, the typical foundation's effective spending rate is likely to jump to from 4.7% in FY 2009 to 6.8% in FY 2010. The effective spending rate is also likely to be greater than 6% in FY 2011 as well.

Table 9: Case 3: Change in Spending from Prior Fiscal Year

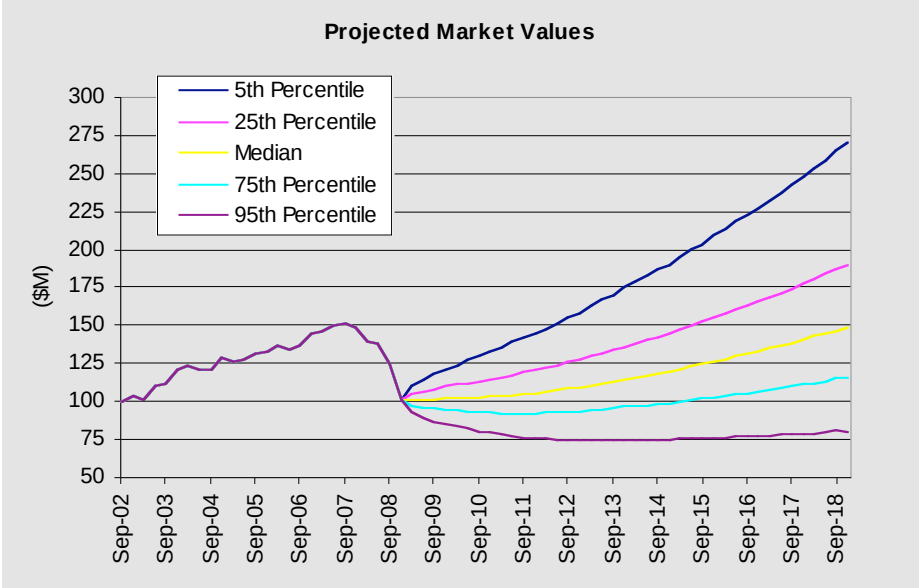
Change in Spending	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
5th Percentile	-0.8	-5.8	-5.8	3.8	13.2	14.3	15.1	15.9	16.2	16.4	16.6
25th Percentile	-0.8	-7.7	-9.6	-2.2	6.6	7.6	8.6	9.2	9.6	9.9	10.1
Median	-0.8	-8.9	-12.4	-6.4	2.1	3.2	4.2	4.8	5.1	5.5	5.6
75th Percentile	-0.8	-10.1	-14.9	-10.6	-2.2	-1.1	0.0	0.4	0.8	1.1	1.3
95th Percentile	-0.8	-11.8	-18.4	-16.0	-8.1	-7.1	-6.1	-5.4	-5.1	-4.9	-4.7

Chart 8: Case 3: Change in Spending from Prior Fiscal Year



Under the median case, spending is likely to decline for the next four fiscal years. The largest decline is expected to take place in 2012. Since most foundations do not receive contributions, spending will recover at a slower rate relative to universities and colleges.

Chart 9: Case 3: Market Values



The bear market has sharply eroded the value of the typical foundation, wiping out six years of gains. We estimate that the ending value of the investment portfolio as of December 2008 will be essentially equal to the market value of the portfolio as of December 2002. Under the median scenario, we estimate that the typical foundation will not return to 2007 levels over the next 10 years.

Section 3: The Effect of Capital Calls on Endowment Liquidity

Institutions building private equity and real asset programs have made dollar commitments over the last few years to reach a target allocation based on expected future market values. The bear market has sliced the market value of institutions by almost a third, so previous years' dollar commitments represent a larger than expected percentage of the portfolio based on current market values. Below, we examine how this might affect future investment levels in illiquid assets and total endowment liquidity.

Case 1: Client has 10% policy allocation to both private equity and real assets. Current allocation as of 12/08 is 5% to both private equity and real assets.

Projected Capital Calls as percentage of 12/08 market values:

a) High-case (no distributions, normal capital calls): 6% of portfolio

b) Low-case (no distributions, reduced capital calls): 4% of portfolio

As of December 2009, assuming flat returns, private equity and real assets will represent about 15% of the portfolio, compared to a 20% policy allocation. In 2010, capital calls might represent about 6% of the portfolio. Provided markets stabilize or improve, the result is that the client will hit private equity targets earlier. The pace of new commitments may have to decline by half to avoid overshooting the target.

Case 2: Client has a 15% allocation to both private equity and real assets and is currently at policy for both asset classes.

Projected Capital Calls as percentage of 12/08 market values:

a) High-case (no distributions, normal capital calls): 10% of portfolio

b) Low-case (no distributions, reduced capital calls): 7% of portfolio

As of December 2009, assuming flat returns and no distributions, private equity and real assets would represent about 37% of the portfolio, compared to a 30% policy allocation. Therefore, the client will be above policy in illiquid assets. At that point, capital calls could represent about 6%-10% of the portfolio. If markets recover, then distributions should be able to return to a more normal pace, improving the liquidity situation of the endowment.

Implications:

The typical NACUBO institution has sufficient liquidity to meet capital calls. An institution that had 10% of their portfolio (20% combined policy allocation to private equity and real assets less 10% actual allocation to private equity and real assets) in placeholder assets (mainly equities) at the start of 2008 would still have a 5% to 6% pro-rata allocation even after market declines, which is sufficient to cover 2009 capital calls.

For those institutions already at their target private equity and real asset weights, the situation is a little more difficult. Institutions might have to temporarily underweight equities to fund commitments, which is acceptable. However, each institution should review their

commitment schedule to determine the best course of action based on its unique circumstances.

Section 4: What is a typical institution's liquidity?

There have been stories in the press about large endowments facing a liquidity crunch because of high allocations to alternative investments. Anecdotally, we have heard some institutions have been forced to sell equities to meet operating needs. The press has reported that others are looking to sell private equity portfolios in the secondary market. The situation has been exacerbated by some hedge funds suspending redemptions. Further, some traditional fixed income and cash portfolios have also suspended redemptions.

While some institutions are experiencing liquidity problems, it appears that most should be in good shape. As we noted earlier, we estimate that the typical endowment will have a 6% to 7% effective spending rate in FY 2010 and will need to make an additional 5% in capital calls. Based on the average NACUBO asset allocation, the typical institution has around 75% of their portfolio in liquid assets (for these purposes, we consider hedge funds illiquid), which should provide sufficient liquidity to cover capital calls and spending needs.

Even institutions that have 30% in private equity and real assets plus 20% in hedge funds should have sufficient liquidity to meet cash needs. Such institutions may face 7% to 10% in capital calls, but they should still be able to comfortably make these. However, meeting these needs might temporarily result in policy violations (for example, under weighting equities to fund private equity capital calls and being temporarily underweight to liquid assets such as fixed income and stocks until it is possible to rebalance by reducing exposure to hedge funds).

Overall Conclusions:

The information provided in this paper is generic. Each institutional investor is in a unique position based upon their asset allocation, their private equity implementation schedule, and their spending needs. We suggest that institutions conduct a liquidity and spending analysis based on their unique circumstances. Overall, we recommend that investors take steps to ensure that they have sufficient liquidity to meet spending and capital call needs over the next six to twelve months. While this bear market has been extremely painful, it is creating attractive opportunities. Institutions should ensure their liquidity, but they should also position themselves to take advantage of opportunities.